



The Longitudinal Study of Australian Children
Annual statistical report 2010

Australian Institute of Family Studies

© Commonwealth of Australia 2011

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth Copyright Administration, Attorney-General's Department, 3–5 National Circuit, Barton ACT 2600 or posted at <www.ag.gov.au/cca>.

The Australian Institute of Family Studies is committed to the creation and dissemination of research-based information on family functioning and wellbeing. Views expressed in its publications are those of individual authors and may not reflect those of the Australian Institute of Family Studies.

Growing Up in Australia: The Longitudinal Study of Australian Children is conducted in partnership between the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS), with advice provided by a consortium of leading researchers from research institutions and universities throughout Australia.

Australian Institute of Family Studies. (2011). *The Longitudinal Study of Australian Children Annual Statistical Report 2010*

Bibliography.

Edited by Brigit Maguire

Copyedited by Kelly Robinson and Lan Wang

Typeset by Lan Wang

Printed by Vega Press

Contents

Foreword	xi
Acknowledgements	xiii
Glossary of LSAC terms	xv
1 Introduction	1
1.1 About the study	2
1.2 Analyses presented in this report	4
1.3 Notes	4
1.4 Further reading	5
1.5 References	5
2 Characteristics of the children and their families	7
<i>Brigit Maguire, Australian Institute of Family Studies</i>	
2.1 The children	8
2.2 Parent characteristics	8
2.3 Family characteristics	11
2.4 Family cultural and language background	14
2.5 Further reading	17
2.6 References	17
3 How family composition changes across waves	19
<i>Brigit Maguire, Australian Institute of Family Studies</i>	
3.1 Children's parents	19
3.2 Children's families	24
3.3 Change in the residents of children's households	26
3.4 Summary	26
3.5 Further reading	27
3.6 References	27
4 Parents and the labour market	29
<i>Matthew Gray and Jennifer Baxter, Australian Institute of Family Studies</i>	
4.1 Parental employment	29
4.2 Children growing up in jobless families or families with part-time only employment	32
4.3 Relationship between parental joblessness and child wellbeing	35
4.4 Parental employment and family wellbeing	37
4.5 Summary	39
4.6 Further reading	40
4.7 References	41
5 Parenting practices and behaviours	43
<i>Nina Lucas, Murdoch Childrens Research Institute</i>	
<i>Jan M. Nicholson, Murdoch Childrens Research Institute and the Parenting Research Centre</i>	
<i>Brigit Maguire, Australian Institute of Family Studies</i>	
5.1 Parenting measures	44
5.2 Descriptive statistics	46
5.3 Sub-group analyses	48
5.4 Summary	54
5.5 Further reading	54
5.6 References	55

6 Children's experiences of child care	57
<i>Linda J. Harrison, Charles Sturt University</i>	
6.1 Definitions	57
6.2 How many 0–1 year olds and 2–3 year olds received child care? Why was care used or why not?	58
6.3 Type(s) of child care experienced by 0–1 year olds and 2–3 year olds	59
6.4 Quantity of child care experienced by 0–1 year olds and 2–3 year olds	60
6.5 Multiplicity of child care experienced by 0–1 year olds and 2–3 year olds	60
6.6 Types of child care experienced by 0–1 year olds and 2–3 year olds in different family circumstances	61
6.7 Summary	67
6.8 Further reading	68
6.9 References	68
7 Family education environment	71
<i>Suzanne MacLaren, Australian Institute of Family Studies</i>	
7.1 Helping with homework	72
7.2 Involvement in class activities	72
7.3 Mother's expectations of child's future educational achievements	74
7.4 Reading to child	76
7.5 Number of children's books in the home	76
7.6 Television in child's bedroom	77
7.7 Time spent watching television	78
7.8 Summary	78
7.9 Further reading	79
7.10 References	79
8 A longitudinal view of children living in disadvantaged neighbourhoods	81
<i>Ben Edwards, Australian Institute of Family Studies</i>	
8.1 Neighbourhood socio-demographic characteristics	82
8.2 Children's experiences over time of living in disadvantaged neighbourhoods	83
8.3 Changes in neighbourhood socio-economic status over the waves: Changes in the neighbourhood or residential mobility?	85
8.4 Summary	87
8.5 Further reading	88
8.6 References	88
9 How young children are faring: Behaviour problems and competencies	91
<i>Diana Smart, Australian Institute of Family Studies</i>	
9.1 Prevalence of behaviour problems at 2–3 years	92
9.2 Competencies at 2–3 years	96
9.3 Summary of trends at 2–3 years	98
9.4 Prevalence of behaviour problems at 4–5 years	99
9.5 Competencies at 4–5 years	104
9.6 Summary of trends at 4–5 years	105
9.7 Summary	106
9.8 Further reading	106
9.9 References	106

10 Children's language development 107

Catherine L. Taylor, Curtin Health Innovation Research Institute and the Telethon Institute for Child Health Research

Brigit Maguire, Australian Institute of Family Studies

Stephen R. Zubrick, Curtin Health Innovation Research Institute and the Telethon Institute for Child Health Research

10.1	Language assessments: Waves 1–3	107
10.2	B cohort	108
10.3	K cohort	115
10.4	Key findings and future opportunities	121
10.5	Further reading	121
10.6	References	121

11 Children's pre- and perinatal health experiences 123

Brigit Maguire, Australian Institute of Family Studies

11.1	Who provides mothers with medical care during their pregnancy?	124
11.2	What medications do mothers take during pregnancy?	125
11.3	What medical conditions do mothers experience during pregnancy?	127
11.4	How many mothers report drinking alcohol or smoking cigarettes during pregnancy?	128
11.5	Which mothers had a pre-term birth or a child with a low birth weight?	130
11.6	Summary	131
11.7	Further reading	132
11.8	References	132

List of figures

Figure 2.1	Distribution of B cohort, by child's age, Wave 1	8
Figure 2.2	Distribution of K cohort, by child's age, Wave 1	8
Figure 2.3	Distribution of age of biological mothers at birth of study child, B and K cohorts	9
Figure 2.4	Distribution of age of biological fathers at birth of study child, B and K cohorts	9
Figure 2.5	Education levels of children's mothers, B and K cohorts, Wave 1	10
Figure 2.6	Highest level of education between children's parents, B and K cohort, Wave 1	11
Figure 2.7	Distribution of children, mothers and fathers who identified as Aboriginal or Torres Strait Islander, B and K cohorts, Wave 1	17
Figure 3.1	Distribution of age of lone mothers at birth of study child, as a proportion of all mothers in age group, B and K cohorts, Waves 1–3	22
Figure 3.2	Children with a new sibling born since the previous wave, B and K cohorts, Waves 2 and 3	25
Figure 3.3	Distribution of children who had a change in the household since the previous wave, B and K cohorts, Waves 2 and 3	27
Figure 4.1	Total weekly hours worked by parents in two-parent families, by age of youngest child, B and K cohorts, Waves 1–3	32
Figure 4.2	Child outcome indices at Wave 3, by joblessness over Waves 1–3, B cohort	36
Figure 4.3	Child outcome indices at Wave 3, by joblessness over Waves 1–3, K cohort	36
Figure 4.4	Mothers feeling rushed or pressed for time, by age of youngest child and weekly work hours, B and K cohorts, Waves 1–3	38
Figure 4.5	Employed mothers missing out on family activities due to work, by age of youngest child and weekly work hours, B and K cohorts, Waves 1–3	38
Figure 4.6	Fathers feeling rushed or pressed for time, by age of youngest child and weekly work hours, B and K cohorts, Waves 1–3	39
Figure 4.7	Employed fathers missing out on family activities due to work, by age of youngest child and weekly work hours, B and K cohorts, Waves 1–3	39
Figure 4.8	Difficulty of life at present for mothers and fathers, by weekly work hours, B and K cohorts, Waves 1–3	40
Figure 7.1	Average weekly hours spent watching television, K cohort Wave 1 and B cohort Wave 3	78
Figure 8.1	Between-wave neighbourhood mobility, by neighbourhood disadvantage in the previous wave, B and K cohorts, Waves 1–3	87
Figure 9.1	Comparison of 2–3 year old subgroups on total behaviour problems, BITSEA scale (mothers' reports), B cohort, Wave 2	94
Figure 9.2	Comparison of 2–3 year old sub-groups on the total number of competencies, BITSEA scale (mothers' reports), B cohort, Wave 2	97
Figure 9.3	Cohort mean scores on SDQ behaviour problem scales (mothers' reports), B cohort, Wave 3	99
Figure 9.4	Comparison of boys and girls on SDQ behaviour problem scales at 4–5 years (mothers' reports), B cohort, Wave 3	101
Figure 9.5	Comparison of children from families differing on socio-economic position on SDQ behaviour problem scales at 4–5 years (mothers' reports), B cohort, Wave 3	103
Figure 9.6	Comparison of 4–5 year old children with differing numbers of siblings on SDQ behaviour problem scales (mothers' reports), B cohort, Wave 3	103
Figure 9.7	Comparison of 4–5 year old children from metropolitan and regional areas on SDQ behaviour problem scales (mothers' reports), B cohort, Wave 2	103
Figure 9.8	Comparison of 4–5 year old subgroups on SDQ prosocial behaviour scale (mothers' reports), B cohort, Wave 3	105
Figure 11.1	Mothers who reported taking prescription medications during pregnancy ($n = 5,097$), B cohort, Wave 1	126
Figure 11.2	Mothers who reported taking over-the-counter medications during pregnancy ($n = 5,102$), B cohort, Wave 1	126

List of tables

Table 1.1	Number of children, B and K cohorts, Waves 1–3	2
Table 1.2	Response rates, B and K cohorts, Waves 1–3	4
Table 2.1	Characteristics and categories of subpopulation groups	7
Table 2.2	Distribution of mothers and fathers working full-time, part-time or not currently working, B and K cohorts, Waves 1–3	11
Table 2.3	Distribution of children, by whether living in two-parent or lone-mother families, B and K cohorts, Waves 1–3	12
Table 2.4	Distribution of children by Australian state/territory, B and K cohorts, Waves 1–3	12
Table 2.5	Distribution of children, by metropolitan and regional areas, B and K cohorts, Waves 1–3	12
Table 2.6	Distribution of weighted data across SEP categories, B and K cohorts, Waves 1–3	13
Table 2.7	Distribution of children with no, one, two or three or more siblings in the home, B and K cohorts, Waves 1–3	14
Table 2.8	Distribution of country/region of birth, by study child, their mother and their father, B and K cohorts	14
Table 2.9	Ten most common countries of birth, by mothers and fathers, B and K cohorts	15
Table 2.10	Distribution of age on arrival in Australia, children's parents, B and K cohorts	15
Table 2.11	Main language spoken at home, by study child, their mother and their father, B and K cohorts, Wave 1	16
Table 2.12	Main language spoken at home (English or non-English), by study child, their mother and their father, B and K cohorts, Waves 1–3	16
Table 3.1	Distribution of children living in three major family types, B and K cohorts, Waves 1–3	20
Table 3.2	Change in family type, B cohort, Waves 1 and 3	21
Table 3.3	Change in family type, K cohort, Waves 1 and 3	22
Table 3.4	Parents' relationship status, B and K cohorts, Waves 1–3	23
Table 3.5	Change in parents' relationship status, B cohort, Waves 1 and 3	24
Table 3.6	Change in parents' relationship status, K cohort, Waves 1 and 3	24
Table 3.7	Distribution of children living with different types of siblings, B and K cohorts, Waves 1–3	25
Table 3.8	Distribution of parents with children living elsewhere, B and K cohorts, Waves 1–3	26
Table 4.1	Paid employment of mothers with an infant aged 3–14 months old, B cohort, Wave 1	30
Table 4.2	Mother's employment status and hours of paid work, by age of youngest child, B and K cohorts, Waves 1–3	30
Table 4.3	Fathers' employment status and hours of paid work, by age of youngest child, B and K cohorts, Waves 1–3	31
Table 4.4	Family labour supply in lone- and two-parent families, by age of youngest child, B and K cohorts, Waves 1–3	33
Table 4.5	Persistence of joblessness, by family type, B and K cohorts, Waves 1–3	34
Table 4.6	Proportion of mothers and fathers with low level of educational attainment (incomplete secondary education), by family joblessness and family type, K cohort, Waves 1–3	35
Table 5.1	Descriptive statistics of parenting scores at each wave, B cohort, Waves 1–3	47
Table 5.2	Descriptive statistics of parenting scores at each wave, K cohort, Waves 1–3	47
Table 5.3	Poor parenting outcomes, by population subgroups, B cohort mothers, Waves 1–3	50
Table 5.4	Poor parenting outcomes, by population subgroups, B cohort fathers, Waves 1–3	51
Table 5.5	Poor parenting outcomes, by population subgroups, K cohort mothers, Waves 1–3	52
Table 5.6	Poor parenting outcomes, by population subgroups, K cohort fathers, Waves 1–3	53
Table 6.1	Type of child care received (0–1 year olds and 2–3 year olds), B cohort, Waves 1 and 2	59
Table 6.2	Type of child care, by weekly hours (quantity) of care (for children receiving care), B cohort, Waves 1 and 2	60
Table 6.3	Type of child care, by number of weekly care arrangements (for children receiving care), B cohort, Waves 1 and 2	61

Table 6.4	Type and quantity of child care received, by family socio-economic position (for all children), B cohort, Waves 1 and 2	62
Table 6.5	Type and quantity of child care received, by mothers' work hours (full-time, part-time, not currently working), B cohort, Waves 1 and 2	64
Table 6.6	Type and quantity of child care received, by geographic location, B cohort, Waves 1 and 2	65
Table 6.7	Type and quantity of child care received, by language spoken at home, B cohort, Waves 1 and 2	65
Table 6.8	Type and quantity of child care received, by number of children in the household, B cohort, Waves 1 and 2	66
Table 7.1	Frequency with which mothers helped children with homework, by family socio-economic position, K cohort, Waves 2 and 3	72
Table 7.2	Frequency with which mothers helped children with homework, by family type, K cohort, Waves 2 and 3	73
Table 7.3	Mother's involvement in class activities during the previous school term, by family socio-economic position, K cohort, Waves 2 and 3	73
Table 7.4	Mothers' involvement in class activities during the previous school term, by main language spoken at home by mother, K cohort, Waves 2 and 3	73
Table 7.5	Mothers' expectations of child's educational achievements, by highest level of parental education, K cohort, Waves 2 and 3	74
Table 7.6	Mothers' expectations of child's educational achievements, by mother's age at birth of child, K cohort, Waves 2 and 3	75
Table 7.7	Frequency with which child is read to, by highest level of parental education (both Parent 1 and Parent 2), K cohort Wave 1 and B cohort Wave 3	76
Table 7.8	Frequency with which child is read to, by mother's age at birth of child, K cohort Wave 1 and B cohort Wave 3	77
Table 7.9	Number of children's books in the home, by family socio-economic position, K cohort, Wave 2	77
Table 7.10	Whether child has a television in their bedroom, by family socio-economic position, K cohort, Wave 2	78
Table 8.1	Neighbourhood social and demographic variables, B and K cohorts, Waves 1–3	82
Table 8.2	Children living in advantaged and disadvantaged neighbourhoods, B and K cohorts, Waves 1–3	83
Table 8.3	Transitions into and out of living in a disadvantaged neighbourhood, B cohort, Wave 1 to Wave 2	83
Table 8.4	Transitions into and out of living in a disadvantaged neighbourhood, B cohort, Wave 2 to Wave 3	84
Table 8.5	Transitions into and out of living in a disadvantaged neighbourhood, K cohort, Wave 1 to Wave 2	84
Table 8.6	Transitions into and out of living in a disadvantaged neighbourhood, K cohort, Wave 2 to Wave 3	85
Table 8.7	Mobility out of neighbourhood of residence in the previous wave, B and K cohorts, Waves 1–3	85
Table 8.8	Transitions into and out of living in a disadvantaged neighbourhood between waves and neighbourhood mobility, B cohort, Waves 1–3	86
Table 8.9	Transitions into and out of living in a disadvantaged neighbourhood between waves and neighbourhood mobility, K cohort, Waves 1–3	87
Table 9.1	Percentage of children showing differing types of behaviour problems at 2–3 years, BITSEA scale (mothers' reports), B cohort, Wave 2	93
Table 9.2	Percentage of children showing differing types of competencies at 2–3 years, BITSEA scale (mothers' reports), B cohort, Wave 2	96
Table 9.3	Percentage of children showing differing types of behaviour problems at 4–5 years, SDQ (mothers' reports), B cohort, Wave 3	100
Table 9.4	Percentage of children showing prosocial behaviour at 4–5 years, SDQ (mothers' reports), B cohort, Wave 3	104
Table 10.1	Language assessments, B cohort, Waves 1–3	108

Table 10.2	Language assessments, K cohort, Waves 1–3	109
Table 10.3	Percentage of children who had developed each skill on the CSBS DP across four age groups, B cohort, Wave 1	110
Table 10.4	Percentage of children scoring above and below the 15th percentile for the whole cohort on the CSBS DP Infant–Toddler Checklist, B cohort, Wave 1	112
Table 10.5	Percentage of parents with concerns about their child’s expressive and receptive language abilities (PEDS), B cohort, Wave 1	112
Table 10.6	Percentage of children scoring above and below the 15th percentile for the whole cohort on the Macarthur CDI–3, B cohort, Wave 2	113
Table 10.7	Percentage of parents with concerns about their child’s expressive and receptive language abilities (PEDS), B cohort, Wave 2	113
Table 10.8	Percentage of children who scored above and below the 15th percentile for the whole cohort on the Adapted PPVT–III, B cohort, Wave 3	114
Table 10.9	Teacher ratings of children’s expressive and receptive language skills in relation to other children of the same age, B cohort, Wave 3	114
Table 10.10	Percentage of children who scored above and below the 15th percentile for the whole cohort on the PPVT–III, K cohort, Wave 1	115
Table 10.11	Teacher ratings of children’s expressive and receptive language skills in relation to other children the same age, K cohort, Wave 1	116
Table 10.12	Percentage of parents with concerns about their child’s expressive and receptive language abilities (PEDS), K cohort, Wave 1	116
Table 10.13	Percentage of children who scored above and below the 15th percentile for the whole cohort on the PPVT–III, K cohort, Wave 2	117
Table 10.14	Percentage of children who scored above and below the 15th percentile on the CCC-2, K cohort, Wave 2	117
Table 10.15	Teacher ratings of children’s language and literacy skills in relation to other children of the same age on the ARS: Language and Literacy Scale, K cohort, Wave 2	118
Table 10.16	Percentage of parents with concerns about their child’s expressive and receptive language abilities (PEDS), K cohort, Wave 2	119
Table 10.17	Percentage of children who scored above and below the 15th percentile for the whole cohort on the PPVT–III, K cohort, Wave 3	119
Table 10.18	Teacher ratings of children’s language and literacy skills in relation to other children of the same age on the ARS: Language and Literacy Scale, K cohort, Wave 3	120
Table 10.19	Teacher ratings of children’s language and literacy skills and academic achievement in relation to other children at the same grade level, K cohort, Wave 3	121
Table 11.1	Use of antenatal care providers by maternal age at birth, by family SEP and by residence in metropolitan/regional area, B cohort, Wave 1	125
Table 11.2	Use of prescription and over-the-counter medications during pregnancy, by maternal age at birth and by family socio-economic position, B cohort, Wave 1	127
Table 11.3	Medical conditions experienced during pregnancy, by maternal age at birth and by family socio-economic position, B cohort, Wave 1	128
Table 11.4	Percentage of mothers who reported drinking alcohol/smoking cigarettes during pregnancy, B and K cohorts, Wave 1	129
Table 11.5	Drinking alcohol and cigarette smoking, by maternal age at birth and by family socio-economic position, B cohort, Wave 1	130
Table 11.6	Gestational age and low birth weight, by maternal age at birth and by family socio-economic position, B cohort, Wave 1	131

Foreword

I am pleased to introduce the first of the Annual Statistical Report series for *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)*. This is a new series of reports produced by the Australian Institute of Family Studies that will provide policy-makers, researchers, practitioners and others with a valuable introduction to the wealth of information collected by the study.

This report examines the multiple facets of children's lives that influence their wellbeing, including their family characteristics and their experiences of the broader social environment. Children's early development is an important precursor for their outcomes in later childhood, adolescence and adulthood. Children's families form the predominant environment in which early development takes place, and characteristics of their families influence many aspects of their lives. Their experiences within the broader environmental context also interact with their family environments and their developmental outcomes to influence their wellbeing.

Using data from children aged 0–9 years, chapters in the report make use of the study's longitudinal nature to investigate children's experiences over time. This provides insight into the experience of prolonged disadvantage and the critical points of transition in children's lives. Sections of the report examine how experiences and developmental outcomes vary for different demographic groups of children, including children from different socioeconomic backgrounds and different family structures.

The results presented in this report provide a foundation for further research and information that can inform government policies and programs that support the wellbeing of children and their families.



Alan Hayes
Director
Australian Institute of Family Studies

Acknowledgements

The Australian Institute of Family Studies thanks the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) for funding this report, and the FaHCSIA LSAC Team for their contributions.

We are also grateful to the following reviewers for their comments on earlier versions of specific chapters:

- Professor Donna Berthelsen, School of Early Childhood, Queensland University of Technology;
- Professor Deborah Brennan, Social Policy Research Centre, University of New South Wales;
- Associate Professor Boyd Hunter, Centre for Aboriginal Economic Policy Research, Australian National University;
- Professor Ariel Kalil, Harris School of Public Policy Studies, University of Chicago;
- Dr Gehan Roberts, Centre for Community Child Health, The Royal Children's Hospital;
- Professor Peter Whiteford, Social Policy Research Centre, University of New South Wales; and
- employees of the Australian Institute of Family Studies, the Australian Institute of Health and Welfare, the Department of Education, Employment and Workplace Relations, the Department of Health and Ageing, and the Department of Families, Housing, Community Services and Indigenous Affairs.

For more information about the study, see <www.aifs.gov.au/growingup>.

This report uses unit record data from *Growing Up in Australia: The Longitudinal Study of Australian Children*. The study is conducted in partnership between the Department of Families, Housing, Community Services and Indigenous Affairs, Australian Institute of Family Studies (AIFS), and Australian Bureau of Statistics (ABS). The findings and views reported in this report are those of the individual authors and should not be attributed to FaHCSIA, AIFS or the ABS.

Glossary of LSAC terms

B cohort	The younger group (“baby” cohort) of study children. Aged 0–1 in Wave 1 (2004) Aged 2–3 in Wave 2 (2006) Aged 4–5 in Wave 3 (2008)
K cohort	The older group (“kindergarten” cohort) of study children. Aged 4–5 in Wave 1 (2004) Aged 6–7 in Wave 2 (2006) Aged 8–9 in Wave 3 (2008)
LSAC	<i>Growing Up in Australia:</i> The Longitudinal Study of Australian Children. A nationally representative longitudinal study of child development, which commenced in 2004. Data is collected from study children, their parents, carers and teachers, and through linkage with other national datasets.
Parent 1	The child’s primary parent, defined as the child’s primary caregiver, or the parent who knows the child best. In the majority of cases, this is the child’s biological mother, but can also be the father or another guardian.
Parent 2	The child’s second parent, usually the partner of the primary parent. In most cases, this is the child’s biological father, but can also be the mother, another partner of the primary parent, or another guardian.
Study child (or child)	The sampling unit for LSAC is the study child, so “child” refers to the child selected for inclusion in the study. Data collected and reported relates to this child.
Wave	Periods of data collection. Wave 1 occurred in 2004 (B cohort were 0–1 years, K cohort were 4–5 years) Wave 2 occurred in 2006 (B cohort were 2–3 years, K cohort were 6–7 years) Wave 3 occurred in 2008 (B cohort were 4–5 years, K cohort were 8–9 years)

Introduction

Children born in the early years of this millennium are growing up in an Australian society different to that experienced by any previous generation. In order to ensure that children growing up in Australia have every chance to experience a happy and healthy start to life, it is essential that policy-makers and researchers have access to quality data about children's development in the current economic, social and cultural environment. *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)* is Australia's first nationally representative longitudinal study of child development. The study provides valuable data on children, their families and their wider environments, and enables researchers and policy-makers to understand how these change and interact as children grow up.

This is the first volume in the LSAC Annual Statistical Report series. The purpose of these reports is to provide an overview of the data from the study and thereby describe aspects of Australian children's lives and development. The reports will also be able to provide longitudinal statistics to describe the dynamics of change as children develop, and how their families and lives change as they grow older.

This report is structured around six themes (covering the two broad domains of *children's environments* and *children's development*), with chapters as follows:

1. Introduction

Families

2. Characteristics of the children and their families
3. How family composition changes across waves
4. Parents and the labour market
5. Parenting practices and behaviours

Education

6. Children's experiences of child care
7. Family education environment

Housing, neighbourhood and community

8. A longitudinal view of children living in disadvantaged neighbourhoods

Socio-emotional development

9. How young children are faring: Behaviour problems and competencies

Cognitive development and learning

10. Children's language development

Physical development and health

11. Children's pre- and peri-natal health experiences

Each chapter concludes with a list of “further reading” for those interested in other LSAC work undertaken on particular topics.

The first section of this introductory chapter provides a brief overview of LSAC and the second section describes the analytical approaches used throughout the main chapters.

1.1 About the study

Growing Up in Australia: The Longitudinal Study of Australian Children is Australia’s first nationally representative longitudinal study of child development. The purpose of the study is to provide data that enable a comprehensive understanding of children’s development within Australia’s current social, economic and cultural environment (Department of Families, Housing, Community Services and Indigenous Affairs [FaHCSIA] LSAC Team, 2009). The longitudinal nature of the study enables researchers to examine the dynamics of change as children develop, and to go beyond the static pictures provided by cross-sectional statistics.

The study was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs and is conducted in partnership with the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS). A consortium of leading researchers and experts from universities and research agencies provide advice to the study.

Study design

The study has an accelerated cross-sequential design, with two cohorts of children:

- the B (“baby”) cohort, who were aged 0–1 years at the beginning of the study (born from March 2003 to February 2004); and
- the K (“kindergarten”) cohort, who were aged 4–5 years at the beginning of the study (born from March 1999 to February 2000).

The first wave of data collection was in 2004, with subsequent main waves every two years. Table 1.1 summarises the ages and sample sizes for the two cohorts across the first three waves of the study.

This design means that from the third wave of the study, the children’s ages overlap. That is, children are aged 4–5 years in the first wave for the K cohort and in the third wave for the B cohort. In covering the first three waves of the study, this report includes data on children between the ages of 0 and 9 years.

Table 1.1 Number of children, B and K cohorts, Waves 1–3			
	Wave 1 (2004)	Wave 2 (2006)	Wave 3 (2008)
B cohort	0–1 years 5,107	2–3 years 4,606	4–5 years 4,386
K cohort	4–5 years 4,983	6–7 years 4,464	8–9 years 4,332

Respondents and collection methods

A unique feature of LSAC is its use of multiple respondents. This provides a rich picture of children’s lives and development, as responses can be compared between different respondents (e.g., parents and teachers) to provide an insight into children’s behaviour in different contexts. The use of multiple respondents also helps to reduce the effects of respondent bias. In the first three waves of the study, data were collected from:

- parents of the study child:
 - the primary parent (not necessarily a biological parent) (Parent 1)—defined as the person who knows most about the child;
 - the secondary parent (not necessarily a biological parent) (Parent 2); and

- a parent living elsewhere (PLE)—a parent who lives apart from the child but who has contact with the child);
- the study child;
- carers/teachers (depending on child's age); and
- interviewer observations.

In the first three waves of the study, the primary respondent was the child's primary carer. In the majority of cases, this was the child's biological mother, but may also have been someone else who knew the most about the child.

A variety of data collection methods have been used in the study, including:

- face-to-face interviews;
- self-complete questionnaires:
 - during interview:
 - on paper;
 - by computer-assisted interview (CAI); and
 - by computer-assisted self-interview (CASI);
 - leave-behind (paper); and
 - mail-out;
- physical measurements of the child, including height, weight, girth, body fat, blood pressure;
- time use diaries;
- computer-assisted telephone interviews; and
- linked administrative data (e.g., Medicare).

The interviews and questionnaires include validated scales appropriate to the children's ages.

Sampling and survey design

The sampling unit for LSAC is the study child. The sampling frame for the study was the Medicare Australia (formerly the Health Insurance Commission) enrolments database, which is the most comprehensive database of Australia's population, particularly of young children. In 2004, approximately 18,800 children were sampled from this database, using a two-stage clustered design. In the first stage, 311 postcodes were randomly selected (very remote postcodes were excluded due to the high cost of collecting data from these areas). In the second stage, children were randomly selected within each postcode, with the two cohorts sampled from the same postcodes. A process of stratification was used to ensure that the numbers of children selected were roughly proportionate to the total numbers of children within each state/territory, and within the capital city statistical districts and the rest of each state. The method of postcode selection took into account the number of children in the postcode; hence, all the potential participants in the study Australia-wide had an approximately equal chance of selection (about one in 25).¹

Response rates

The 18,800 families selected were then invited to participate in the study. Of these, 54% of families agreed to take part in the study (57% of B cohort families and 50% of K cohort families). About 35% of families refused to participate (33% of B cohort families and 38% of K cohort families), and 11% of families could not be contacted (e.g., because the address was out of date, or only a post office box address was provided) (10% of B cohort families and 12% of K cohort families).

This resulted in a nationally representative sample of 5,107 0–1 year olds and 4,983 4–5 year olds who were Australian citizens or permanent residents. Table 1.2 presents the response rates for each of the three waves².

¹ See Soloff, Lawrence, & Johnstone (2005) for more information about the study design.

² The sample size reported in analyses using more than one wave may be lower than shown in Table 1.2 because it includes only those responding to all waves. (Note that some of the families responding in Wave 3 did not respond in Wave 2.)

Table 1.2 Response rates, B and K cohorts, Waves 1–3			
	Wave 1	Wave 2	Wave 3
B cohort			
Number	5,107	4,606	4,386
Response rate of Wave 1	100%	90.2%	85.9%
Response rate of available sample ^a	–	91.2%	88.2%
K cohort			
Number	4,983	4,464	4,332
Response rate of Wave 1	100%	89.6%	86.9%
Response rate of available sample ^a	–	90.9%	89.7%
Total			
Number	10,090	9,070	8,718
Response rate of Wave 1	100%	89.9%	86.4%
Response rate of available sample ^a	–	91.1%	89.0%

Note: ^a The available sample excludes those families who had opted out of the study between waves.

1.2 Analyses presented in this report

This report includes data from the first three waves of the study. Analyses for the two cohorts (B and K) are presented separately throughout this report.

Given the breadth and depth of topics included in the study, chapters in this report do not necessarily use data from all three waves and/or cohorts. For example, under the Education theme, this report focuses on the first two waves of the study, looking at family child care arrangements. Further examination of later education will be continued in future reports.

Two general approaches are taken to the analyses in this report:

- *comparisons between certain subpopulation groups* (introduced in Chapter 2) on the various aspects of children’s environments and development—for example, comparison of parenting behaviours for mothers of different ages; and
- *examination of trends across waves* (as children get older)—for example, examination of how patterns of child care change as children get older; or examination of individual transitions into and out of disadvantaged neighbourhoods between waves.

Weighting and survey analysis

Sample weights (for the study children) are produced for the study dataset in order to reduce the impact of bias in sample selection and participant non-response (Misson & Siphthorp, 2007; Siphthorp & Misson, 2009; Soloff, Lawrence, & Johnstone, 2005; Soloff, Lawrence, Misson, & Johnstone, 2006). This gives greater weight to population groups that are under-represented in the sample, and less weight to groups that are over-represented in the sample. Weighting therefore ensures that the study sample more accurately represents the sampled population.

These sample weights are used in analyses presented throughout this report. Cross-sectional or longitudinal weights are used when examining data from more than one wave. Analysis was conducted using Stata® *svy* (survey) commands, which take into account the clusters and strata used in the study design when producing measures of the reliability of estimates.

1.3 Notes

- Information was collected from the children’s primary and secondary parents (Parent 1 and Parent 2 respectively). The majority of primary parents were mothers (i.e., at all waves, more than 96% of the Parent 1 group were women) and the majority of secondary parents were fathers. In some chapters, data collected from the Parent 1 group are reported for mothers only, and data from the Parent 2 group are reported for fathers only.

- Some chapters compare responses to particular questions between waves. In some cases, these questions were collected using different methods in different waves (e.g., by interview in one wave and by self-complete in another).
- Unless specifically noted, all references to the child's "household" or "family" are to those of their primary parent (Parent 1), and do not include any other household or family they may have with a parent living elsewhere. Similarly, references to "parents" is to Parent 1 and Parent 2, not to parents living elsewhere.
- Statistics are rounded to one decimal place, so totals may not sum to 100%.

1.4 Further reading

Australian Institute of Family Studies. (2009). *Longitudinal Study of Australian Children data user guide*. Melbourne: AIFS.

Gray, M., & Smart, D. (2008). Growing Up in Australia: The Longitudinal Study of Australian Children is now walking and talking. *Family Matters*, 79, 5–13.

Gray, M., & Smart, D. (2009). Growing Up in Australia: The Longitudinal Study of Australian Children: A valuable new data source for economists. *Australian Economic Review*, 42(3), 367–376.

Sanson, A. (2003). Growing Up in Australia: The first 12 months of a landmark study. *Family Matters*, 64, 40–47.

Sanson, A., Nicholson, J., Ungerer, J., Zubrick, S. R., & Wilson, K. (2002). *Introducing the Longitudinal Study of Australian Children* (Discussion Paper No. 1). Melbourne: Australian Institute of Family Studies.

Soloff, C., Sanson, A., Millward, C., & Consortium Advisory Group. (2003). *Proposed study design and Wave 1 data collection* (Discussion Paper No. 2). Melbourne: Australian Institute of Family Studies.

1.5 References

Department of Families, Housing, Community Services and Indigenous Affairs LSAC Team. (2009). *Longitudinal Study of Australian Children: Key research questions*. Melbourne: Australian Institute of Family Studies. Retrieved from <www.aifs.gov.au/growingup/pubs/reports/krq2009/KeyResearchQuestionsJuly09.pdf>.

Misson, S., & Siphthorp, M. (2007). *Wave 2 weighting and non-response* (Technical Paper No. 5). Melbourne: Australian Institute of Family Studies.

Siphthorp, M., & Misson, S. (2009). *Wave 3 weighting and non-response* (Technical Paper No. 6). Melbourne: Australian Institute of Family Studies.

Soloff, C., Lawrence, D., & Johnstone, R. (2005). *LSAC sample design* (Technical Paper No. 1). Melbourne: Australian Institute of Family Studies.

Soloff, C., Lawrence, D., Misson, S., & Johnstone, R. (2006). *Wave 1 weighting and non-response*. Melbourne: Australian Institute of Family Studies.

Characteristics of the children and their families

2

Brigit Maguire

Australian Institute of Family Studies

Throughout this report, comparisons are made between different subpopulation groups on the various aspects of children's environments and development that are explored using the data from *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)*. For example, Chapter 5 examines how reported parenting behaviours differ for mothers of different ages. The subpopulations used in the comparisons are those identified as priority groups for policy interventions or those that are expected (based on previous research) to differ in terms of their experiences or outcomes.

This chapter includes a description of how each of these subpopulation groups is defined, and reports the percentages of children in each subpopulation group for the two cohorts. The chapter also includes some additional details about the children and their families to further describe the study sample. Table 2.1 lists all the characteristics studied in this report, with those that are only discussed in this chapter marked with an asterisk.

Table 2.1 Characteristics and categories of subpopulation groups	
Characteristics	Categories
Children	
Age*	
Gender	male; female
Parents	
Biological mother's age at the birth of the study child	under 25; 25–29; 30–34; 35–39; 40 or older
Biological father's age at the birth of the study child*	under 25; 25–29; 30–34; 35–39; 40 or older
Parents' education for:	
Mother	lower than Year 12; lower than Year 12 and diploma/certificate/other; Year 12; Year 12 and diploma/certificate/other; tertiary
Parents	highest level of education between Parent 1 and Parent 2
Parents' working hours for:	
Mother	employed full-time; employed part-time; not currently working
Father	
Family	
Type of family**	two-parent family; lone-mother family
Where families live (geographic location):	states/territories* metropolitan areas, regional areas
Family socio-economic position (SEP)	bottom 25%; middle 50%; top 25%; or quintiles
Number of children in the household	number of siblings in the household: none, one, two, three (or more) number of children in the household: one, two, three or more
Family cultural and language background	
Country of birth and arrival in Australia*	
Mother	
Father	
Child	
Main language spoken at home for:	
Mother	
Father*	English; not English
Child	
Aboriginal or Torres Strait Islander background*	

Notes: * These characteristics are discussed in this chapter but not in the rest of the report. ** There are very few lone father families in the study (less than 1% for each cohort), so comparisons are not made with these families.

All data presented are weighted to represent the general population and to account for sample attrition.

2.1 The children

Between 7% and 9% of B cohort children were born in each of the months between March 2003 and February 2004. Between 8% and 9% of K cohort children were born in each of the months between March 1999 and February 2000.

Roughly equal numbers of boys (51% for both cohorts) and girls (49% for both cohorts) took part in the first wave of the study. At the first wave of the study, B cohort infants ranged in age from 3 to 19 months, as shown in Figure 2.1 (the median age was 9 months).¹ Figure 2.2 shows the distribution of ages for the K cohort children; ages ranged from 51 months (4 years, 3 months) to 67 months (5 years, 7 months), with a median age of 57 months (4 years, 9 months).

2.2 Parent characteristics

How old were the parents when their study child was born?

This section looks at the ages of the parents when the study child was born. Parents' ages were derived using details of the mother's and father's relationship to the child and the reported dates

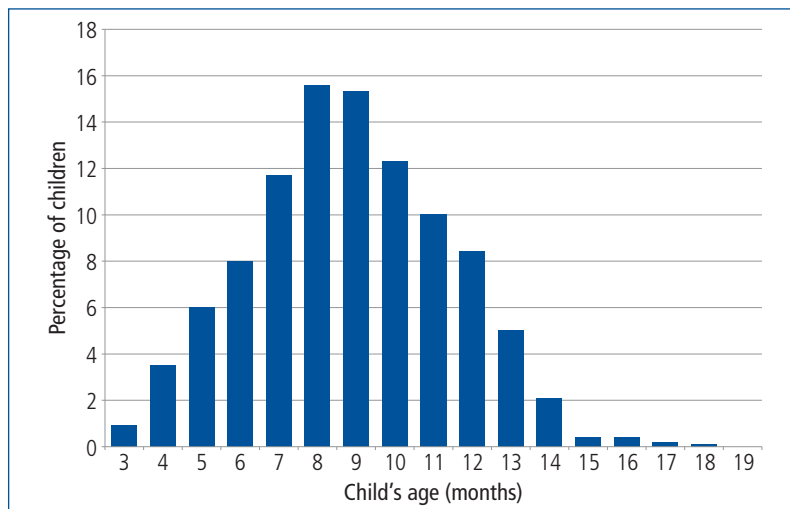


Figure 2.1 Distribution of B cohort, by child's age, Wave 1

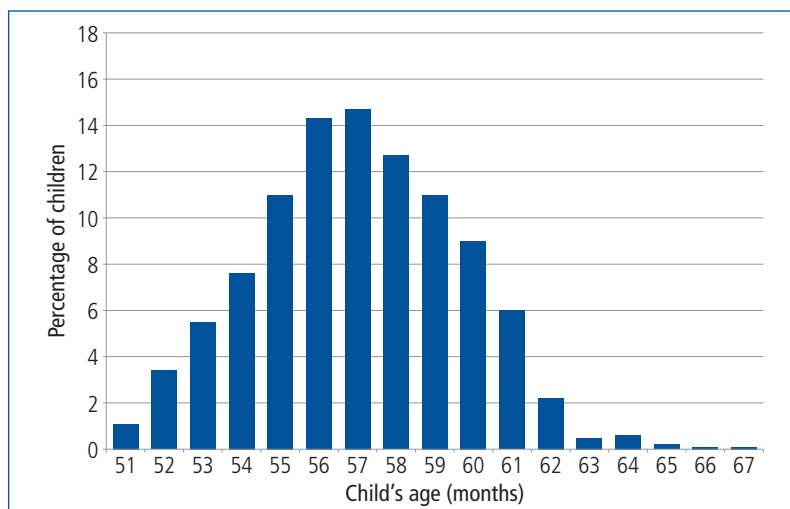


Figure 2.2 Distribution of K cohort, by child's age, Wave 1

¹ Note that children within each cohort were interviewed over a period of approximately 9 months, so the distribution of ages at the time of interview is different to the distribution of ages within the cohort.

of birth for the mother/father and the child. Only parents who were the biological mother/father of the study child, and who lived in the household with the study child at Wave 1 are included in these results (5,087 mothers and 4,600 fathers in the B cohort, and 4,912 mothers and 4,166 fathers in the K cohort).

Figure 2.3 shows the percentages of biological mothers in each of five age groups (which are then compared in other chapters in the report). The figure shows that the most common age for mothers to have their child was at 30–34 years (37% of B cohort mothers, 33% of K cohort mothers). B cohort mothers tended to be slightly older when they had their child compared to K cohort mothers.

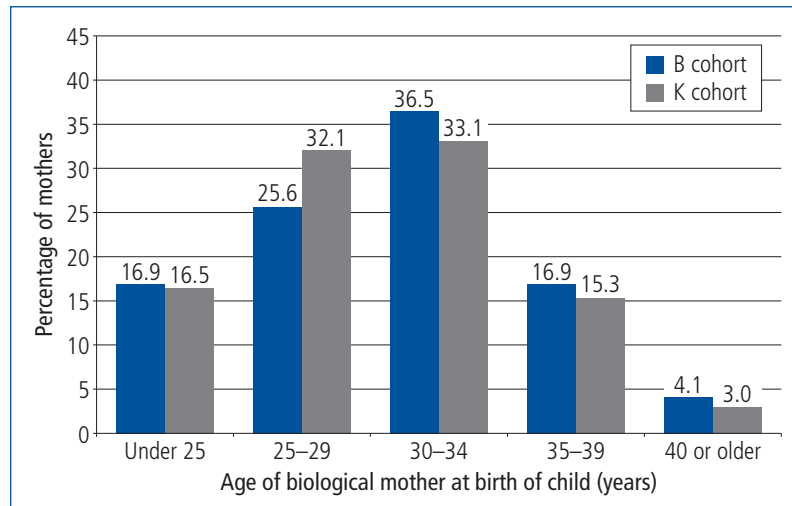


Figure 2.3 Distribution of age of biological mothers at birth of study child, B and K cohorts

Figure 2.4 shows the percentages of biological fathers in each of five age groups. The figure shows that while the 30–34 age group was again the largest, fathers tended to be older than mothers when their child was born. Seven per cent were under 25 when the child was born, compared to 17% of mothers. Between 12% and 14% of fathers were 40 or older, compared to 3–4% of mothers. As for mothers, the B cohort fathers tended to be slightly older than K cohort fathers when their child was born.

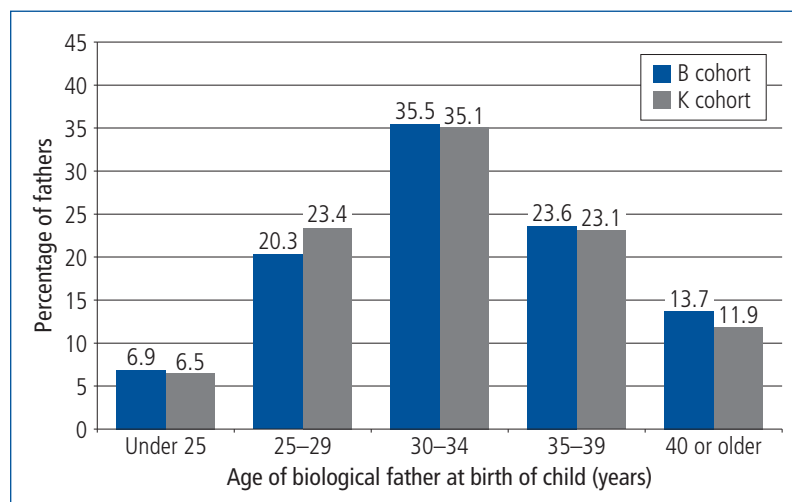


Figure 2.4 Distribution of age of biological fathers at birth of study child, B and K cohorts

Parents' education

Parents were asked to report their highest level of schooling and their highest qualification (certificate, advanced diploma/diploma, bachelor degree, graduate diploma/certificate, postgraduate degree, other). Five education categories were constructed from these responses:

- lower than Year 12;
- lower than Year 12 and diploma/certificate/other;
- Year 12;
- Year 12 and diploma/certificate/other; and
- tertiary.

Education data from only the first wave of the study were used for comparisons in this report, although some parents increased their educational qualifications during the three waves (between 8% and 13% of mothers and fathers were studying at each of the waves for both cohorts).

Figure 2.5 shows the percentage of children's mothers in each of the five education categories at the first wave of the study, for the two cohorts (for 5,098 mothers in the B cohort, and 4,940 mothers in the K cohort). For the B and K cohorts respectively, 22% and 27% of mothers had not completed Year 12 or any further education at Wave 1, and 24% and 29% of mothers were tertiary-educated. B cohort mothers were slightly more likely to be tertiary-educated.

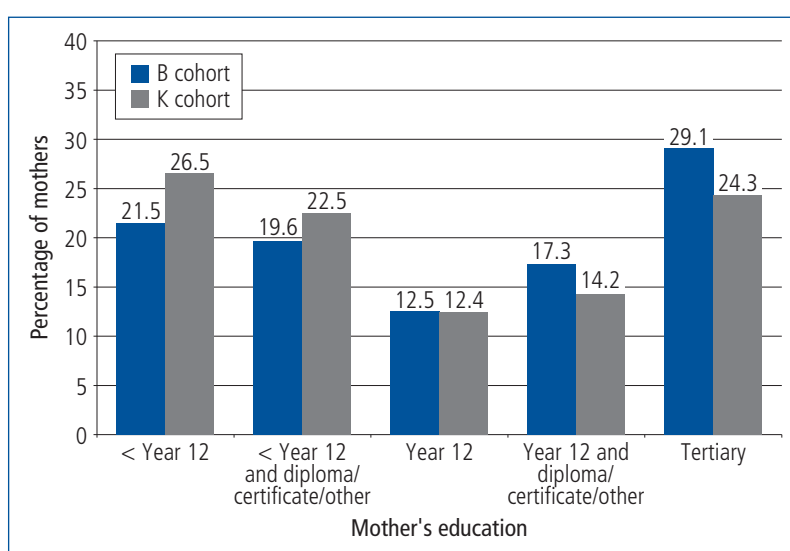


Figure 2.5 Education levels of children's mothers, B and K cohorts, Wave 1

Parents' education was also classified according to the highest level of education between the child's two parents (i.e., Parent 1 and Parent 2) (5,104 observations in the B cohort, 4,979 observations in the K cohort).² Figure 2.6 shows that when the education of both parents is taken into account, the percentage who had not completed Year 12 or any further education was, for the B and K cohorts respectively, 10% and 13%, and the percentage who were tertiary-educated was 38% and 34%. Again, B cohort parents were more likely to be tertiary-educated than K cohort parents.

Parents' working hours

Information about parents' current working hours were summarised into three categories:

- full-time (35 or more hours per week);
- part-time (fewer than 35 hours per week); and
- not currently working (includes those on maternity leave, unemployed and looking for work, and not in the labour force).

Table 2.2 shows that fathers' working hours were consistent regardless of the age of the child (between 82% and 85% of fathers worked full-time across all waves and both cohorts). The percentage of mothers who worked (full-time or part-time) increased with the age of the child.

² If there was no Parent 2 present, Parent 1's level of education was used. Note that these are not necessarily the child's biological parents, and may include parents who have only recently started living with the child (e.g., step-parents).

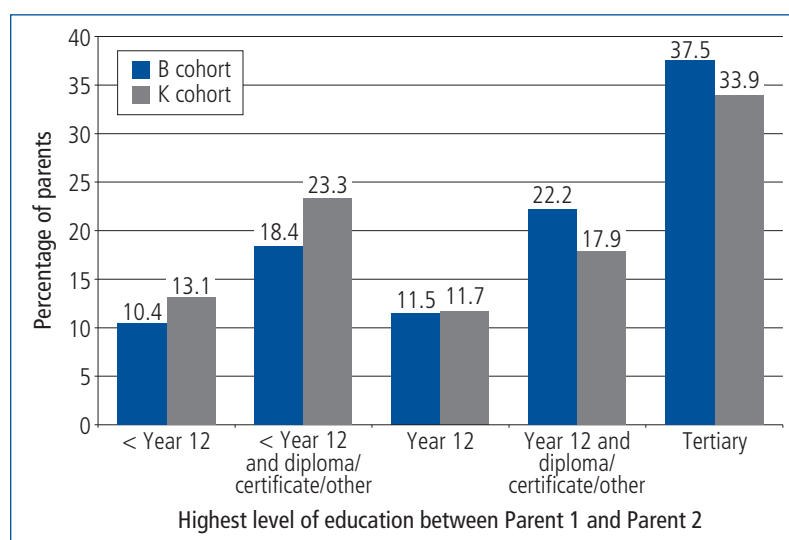


Figure 2.6 Highest level of education between children's parents, B and K cohort, Wave 1

Over sixty per cent of mothers were not working when their child was 0–1 years old (B cohort), but this declined to 35% by the time the K cohort children were 8–9 years old.

Table 2.2 Distribution of mothers and fathers working full-time, part-time or not currently working, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Father						
Full-time (35+ hours/week)	82.2	82.6	82.9	82.4	82.8	84.7
Part-time (< 35 hours/week)	6.5	6.1	6.1	6.2	5.9	5.3
Not currently working	11.3	11.3	10.9	11.4	11.3	10.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	4,578	4,106	3,896	4,286	3,834	3,738
Mother						
Full-time (35+ hours/week)	7.3	11.8	14.6	14.0	17.0	21.4
Part-time (< 35 hours/week)	28.5	36.6	40.5	37.1	41.0	44.1
Not currently working	64.2	51.6	44.9	48.9	41.9	34.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,085	4,589	4,372	4,926	4,423	4,286

Note: Percentages may not total 100% due to rounding.

2.3 Family characteristics

Types of families

Information about the parents with whom the children lived was used to derive a measure of the family type:

- *Two-parent family*—child lived with two parents in their primary household. This includes children living with biological and/or non-biological parents, children living with same-sex couple parents, and children living in other two-parent family types (e.g., with their mother and their grandmother).
- *Lone-mother family*—child lived with one female parent only (who is not necessarily the child's biological mother). Where children had shared parenting arrangements, the family type was defined according to the child's primary household, as identified by the study family.

There were very few lone-father families (less than 1% for each cohort) so these were excluded from analyses comparing different family types.

Table 2.3 shows that the percentages of children in two-parent families declined as children got older. Just under 90% of B cohort children were in two-parent families in Wave 1, and this declined to 86% by Wave 3. Of the K cohort children, 86% were in two-parent families in Wave 1, declining to 84% in Waves 2 and 3. Further details about the range of different family arrangements, and how they change, are included in Chapter 3.

Table 2.3 Distribution of children, by whether living in two-parent or lone-mother families, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Two-parent family	89.5	87.0	86.0	85.6	83.9	84.0
Lone-mother family	10.5	13.0	14.0	14.4	16.1	16.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,104	4,593	4,375	4,946	4,426	4,288

Where do families live?

Table 2.4 shows the percentage of children living in each of the states and territories. Because of the study design and the use of sample weights, these roughly reflect the percentages in the Australian population; New South Wales had the highest proportion of children in the study, and the Northern Territory had the lowest.

Table 2.4 Distribution of children by Australian state/territory, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
New South Wales	33.7	33.4	32.7	34.2	33.5	33.5
Victoria	25.4	24.6	25.4	24.5	25.1	24.1
Queensland	19.1	20.8	20.2	19.6	19.7	20.6
Western Australia	9.6	9.9	9.7	9.6	9.8	9.8
South Australia	7.0	6.5	6.9	7.1	6.7	7.0
Tasmania	2.4	2.5	2.4	2.5	2.5	2.7
Australian Capital Territory	1.7	1.7	1.9	1.6	1.7	1.7
Northern Territory	1.1	0.8	0.8	0.9	1.0	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: Percentages may not total 100% due to rounding.

Families' postcodes were used to link to ABS Census data, which identified whether they lived in metropolitan (capital city statistical divisions) or regional areas (the rest of the state outside the capital city statistical divisions). The percentages of families living in each area are shown in Table 2.5. Approximately two-thirds of LSAC families lived in metropolitan areas, and one-third lived in regional areas.

Table 2.5 Distribution of children, by metropolitan and regional areas, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Metropolitan	66.5	62.6	64.9	63.7	65.9	62.9
Regional	33.5	37.4	35.1	36.3	34.1	37.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Family socio-economic position

Blakemore, Strazdins, and Gibbings (2009) developed a measure of socio-economic position (SEP) for families in LSAC. This measure uses information about combined annual family income, educational attainment of parents and parent occupational status to summarise the social and economic resources to which families have access. Previous literature has shown that family SEP has an important influence on the health, safety and development of children (Blakemore et al., 2009).

For the purposes of this report, the standardised socio-economic position scores have been divided into groups as follows:

- five groups based on quintiles (lowest 20%, second lowest 20%, middle 20%, etc.); and
- three groups based on quartiles (lowest 25%, middle 50%, top 25%).

These categories were derived using unweighted data, and sample weights are applied to the analyses presented throughout this report. Because the percentages of respondents in each category change when the weights are used, the weighted distributions are shown in Table 2.6. The sample weights are designed to give greater weight to groups that had low response rates to the survey. Low levels of school completion among parents was one of the factors found to be related to low response rates (Soloff, Lawrence, Misson, & Johnstone, 2006). As education level is a key component of the measure of SEP, the weighting increases the proportion of respondents in the lower SEP categories and decreases the proportion in the higher SEP categories.

Table 2.6 Distribution of weighted data across SEP categories, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Quartiles						
Lowest 25%	28.6	31.2	31.5	28.6	30.3	31.5
Middle 50%	48.9	47.9	47.8	50.0	48.8	48.8
Highest 25%	22.5	20.9	20.7	21.4	20.9	19.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Quintiles						
Lowest 20%	23.2	25.5	26.2	23.1	24.8	25.8
Second lowest 20%	20.8	21.0	20.9	21.5	21.0	21.5
Middle 20%	19.4	19.2	19.2	19.9	19.5	19.3
Second highest 20%	18.6	17.5	17.1	18.6	18.2	17.8
Highest 20%	18.0	16.7	16.5	17.0	16.5	15.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,092	4,602	4,382	4,965	4,458	4,327

Note: Percentages may not total 100% due to rounding.

Number of siblings in the household

The number of siblings of the study child (including biological, adopted, step- and half-siblings) in the child's main household (Parent 1's residence) were summarised into four categories, as shown in Table 2.7.³ As expected, older children were more likely to have one or more siblings.

³ In some chapters, comparisons are made based on the number of children in the household (one, two, three or more), because of the particular focus of those chapters (e.g., how child care arrangements used by parents vary with the number of children in the family). This is equivalent to the data shown here, as the number of siblings of the study child plus the study child.

Table 2.7 Distribution of children with no, one, two or three or more siblings in the home, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
None	39.1	19.9	11.4	11.5	9.6	8.6
One	36.4	47.3	46.3	47.5	43.9	42.5
Two	16.4	22.5	28.7	26.8	30.2	30.7
Three or more	8.1	10.3	13.6	14.2	16.3	18.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,107	4,606	4,386	4,983	4,464	4,331

2.4 Family cultural and language background

Study participants (usually the primary parent in the face-to-face interview) were asked to report details of all household members, including details about their country of birth, arrival in Australia, languages spoken at home, and identification as Aboriginal or Torres Strait Islander.

Country of birth and arrival in Australia

Study participants' country of birth details are coded according to the Standard Australian Classification of Countries (Australian Bureau of Statistics [ABS], 2008). Table 2.8 shows the percentages of children, mothers and fathers (not necessarily biological parents) born in each of the broad groups (with Australia removed from the Oceania and Antarctica group and reported separately).

The table shows that fathers were slightly more likely to have been born overseas compared to mothers and children. The higher percentage of K cohort children, mothers and fathers born overseas is expected because these children were 4–5 years old when the study began (compared to the B cohort, who were 0–1 years old) and therefore had more time to immigrate to Australia.

Table 2.8 Distribution of country/region of birth, by study child, their mother and their father, B and K cohorts

	Child		Mother		Father	
	B cohort	K cohort	B cohort	K cohort	B cohort	K cohort
	%		%		%	
Australia	99.6	95.8	76.7	74.0	74.4	72.1
Oceania and Antarctica (excluding Australia)	–	0.8	4.4	3.8	4.5	4.3
North-west Europe	–	0.6	4.9	6.4	6.7	8.0
Southern and eastern Europe	–	–	0.7	0.9	1.1	1.7
North Africa and the Middle East	–	–	2.0	2.1	2.9	2.3
South-east Asia	–	0.2	4.0	3.9	2.8	2.7
North-east Asia	–	0.2	1.4	2.1	1.1	1.8
Southern and central Asia	–	0.2	1.8	2.0	1.9	2.3
Americas	–	0.2	1.0	0.8	1.1	0.9
Sub-Saharan Africa	–	0.3	0.8	1.0	0.8	1.2
Other (confidentialised) ^a	0.4	1.6	2.3	2.8	2.8	2.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,107	4,983	5,104	4,945	4,626	4,318

Notes: ^a The "Other (confidentialised)" category includes those countries for which there were fewer than 5 responses. These responses are not identified in the dataset so cannot be assigned to the broader regions. Percentages may not total 100% due to rounding.

Table 2.9 shows the ten most common countries of birth for mothers and fathers in the two cohorts. The two most common countries after Australia were the United Kingdom (including the Channel Islands and the Isle of Man) and New Zealand.

Table 2.9 Ten most common countries of birth, by mothers and fathers, B and K cohorts

	Mothers		Fathers	
	Country of birth	%	Country of birth	%
B cohort	Australia	76.7	Australia	74.4
	United Kingdom, Channel Islands and Isle of Man	3.8	United Kingdom, Channel Islands and Isle of Man	5.9
	New Zealand	3.2	New Zealand	3.3
	Vietnam	1.5	Vietnam	1.4
	Philippines	1.1	Lebanon	1.1
	Chinese Asia (includes Mongolia)	1.0	India	1.0
	India	0.9	Chinese Asia (includes Mongolia)	0.9
	Lebanon	0.6	South Africa	0.7
	Iraq	0.5	Iraq	0.6
	South Africa	0.5	Philippines	0.6
	No. of observations ^a	5,104	No. of observations ^a	4,626
K cohort	Australia	74.0	Australia	72.1
	United Kingdom, Channel Islands and Isle of Man	5.2	United Kingdom, Channel Islands and Isle of Man	6.3
	New Zealand	2.5	New Zealand	2.9
	Chinese Asia (includes Mongolia)	1.6	Chinese Asia (includes Mongolia)	1.6
	Vietnam	1.4	Lebanon	1.3
	Lebanon	1.3	Vietnam	1.2
	Philippines	1.1	India	1.1
	India	0.9	Sri Lanka	0.8
	Sri Lanka	1.7	Malaysia	0.6
	Malaysia	0.5	South Africa	0.6
	No. of observations ^a	4,945	No. of observations ^a	4,318

Note: ^a Includes parents from countries not listed in this table.

Table 2.10 shows the ages at which mothers and fathers who were born overseas arrived in Australia. Both mothers and fathers were most likely to have arrived in Australia while in their 20s.

Table 2.10 Distribution of age on arrival in Australia, children's parents, B and K cohorts

	Mothers		Fathers	
	B cohort	K cohort	B cohort	K cohort
	%		%	
Under 10 years	25.8	24.9	24.3	22.6
10–19 years	22.4	17.2	18.8	18.8
20–29 years	37.6	38.6	37.0	33.5
30 years and older	14.3	19.3	19.9	25.1
Total	100.0	100.0	100.0	100.0
No. of observations	1,100	1,219	1,070	1,128

Note: Percentages may not total 100% due to rounding.

Language spoken at home

Study participants were asked whether each household member mainly spoke a language other than English at home. Languages were classified according to the Australian Standard Classification

of Languages (ABS, 2005). Languages spoken are presented in detail for the first wave of the study in Table 2.11 and summarised into English/non-English in Table 2.12 for the waves that followed.

Table 2.11 shows the percentage of children, mothers and fathers who spoke languages in each of the broad language groups (with English removed from the Northern European Languages category and reported separately). The most commonly spoken languages were southern European languages and south-west and central Asian languages.

Table 2.11 Main language spoken at home, by study child, their mother and their father, B and K cohorts, Wave 1

	Child		Mother		Father	
	B cohort	K cohort	B cohort	K cohort	B cohort	K cohort
English	87.2	86.0	83.0	82.4	84.2	82.3
Northern European languages (excluding English)	0.5	0.2	0.6	0.6	0.5	0.8
Southern European languages	2.0	2.5	3.1	3.6	2.8	3.8
Eastern European languages	0.7	0.7	1.2	0.9	1.0	0.9
South-west and central Asian languages	2.7	2.1	3.1	2.5	3.6	2.8
South Asian languages	1.0	1.4	1.4	1.7	1.4	2.0
South-east Asian languages	1.9	1.6	2.9	2.1	2.0	1.7
East Asian languages	1.3	2.4	1.6	2.8	1.6	2.8
Other languages	2.7	3.1	3.1	3.3	3.0	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,104	4,983	5,104	4,946	4,627	4,318

Note: Percentages may not total 100% due to rounding.

Table 2.12 shows the percentage of children, mothers and fathers who spoke English and non-English languages at each of the first three waves of the study. Children were less likely than their parents to mainly speak a language other than English at home.

Table 2.12 Main language spoken at home (English or non-English), by study child, their mother and their father, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Child						
English	87.2	87.9	87.0	86.0	85.2	86.1
Not English	12.8	12.1	13.0	14.0	14.8	13.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,104	4,603	4,384	4,983	4,464	4,331
Mother						
English	83.0	83.7	83.1	82.4	81.4	82.5
Not English	17.0	16.3	16.9	17.6	18.6	17.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,104	4,593	4,375	4,946	4,426	4,287
Father						
English	84.2	84.9	84.1	82.3	81.0	82.4
Not English	15.8	15.1	15.9	17.7	19.0	17.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	4,627	4,106	3,884	4,318	3,834	3,731

Identification as Aboriginal and Torres Strait Islander

Study participants were asked whether the study child and/or their parent(s) identified as Aboriginal or Torres Strait Islander. There were 5,107 child observations, 5,104 mother observations and 4,627 father observations in the B cohort. There were 4,981 child observations, 4,944 mother observations and 4,316 father observations in the K cohort. Figure 2.7 shows that B cohort families were slightly more likely to identify as Indigenous. For the B and K cohort respectively, 5% and 4% of children identified as Indigenous, and 4% and 3% of mothers did so, as did 2% of fathers in both cohorts.

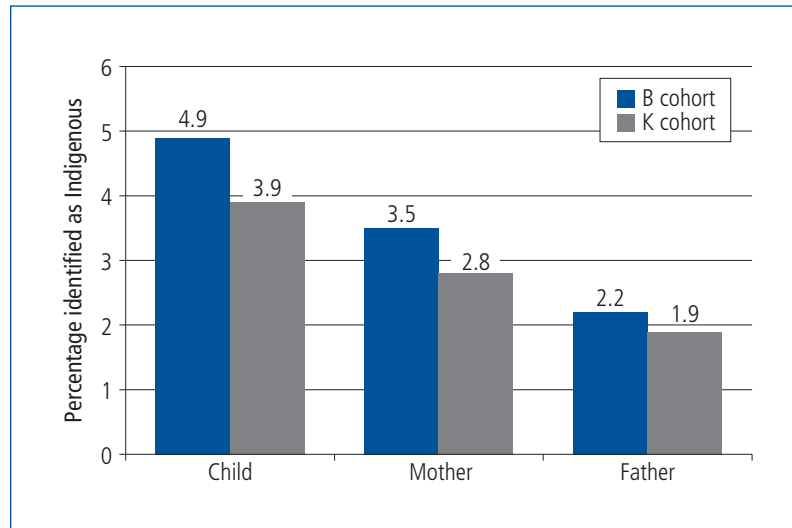


Figure 2.7 Distribution of children, mothers and fathers who identified as Aboriginal or Torres Strait Islander, B and K cohorts, Wave 1

Families who identified as Aboriginal or Torres Strait Islanders were not used as a comparison subpopulation throughout the report due to the small size of this subpopulation, and because of concerns about the representativeness of the group (Hunter, 2008).

2.5 Further reading

Gray, M., & Sanson, A. (2005). Growing Up in Australia: The Longitudinal Study of Australian Children. *Family Matters*, 72, 4–9.

Qu, L., Soriano, G., & Weston, R. (2006). Starting early, starting late: Socio-demographic characteristics and parenting of new mothers of different ages. *Family Matters*, 73, 52–59.

Sanson, A., Johnstone, R., LSAC Research Consortium, & FaCS LSAC Project Team. (2004). Growing Up in Australia takes its first steps. *Family Matters*, 67, 46–52.

Soloff, C., Lawrence, D., & Johnstone, D. (2005) *LSAC sample design* (Technical Paper No. 1). Melbourne: Australian Institute of Family Studies.

2.6 References

Australian Bureau of Statistics. (2005). *Australian Standard Classification of Languages (ASCL) 2005–06* (Cat. No. 1267.0). Canberra: ABS.

Australian Bureau of Statistics. (2008). *Standard Australian Classification of Countries (SACC) (2nd Ed.)* (Cat. No. 1269.0). Canberra: ABS.

Blakemore, T., Strazdins, L., & Gibbings, J. (2009). Measuring family socioeconomic position. *Australian Social Policy*, 8, 121–168.

Hunter, B. (2008). Benchmarking the Indigenous sub-sample of the Longitudinal Study of Australian Children. *Australian Social Policy*, 7, 61–84.

Soloff, C., Lawrence, D., Misson, S., & Johnstone, R. (2006). *Wave 1 weighting and non-response* (Technical Paper No. 3). Melbourne: Australian Institute of Family Studies.

How family composition changes across waves

3

Brigit Maguire

Australian Institute of Family Studies

Children grow up in many different kinds of families, and children's family environments often change as they move through childhood. These family environments and the changes children experience can greatly influence their development and outcomes (de Vaus & Gray, 2003; Pryor & Rodgers, 2001). *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)* provides an opportunity to examine changing family composition and characteristics over time.

This chapter presents analyses using the first three waves of the study to explore changes in family characteristics, focusing on children's parents and siblings.¹ The first section looks at the types of families in which children live (e.g., whether children live with one or both of their biological parents), the characteristics of lone parents, and parents' relationship status. The second section focuses on children's siblings, parents with other children living elsewhere, and children experiencing changes in the residents of their households.

Throughout this chapter, the terms "family" and "household" both refer to the child's main household; that is, the household in which the child lives with their primary parent (Parent 1). The characteristics of children's secondary households (i.e., with a parent living elsewhere after parental separation) will be examined in future reports. The relationships between parents and children reported throughout this chapter are derived using the study respondents' description of the relationships between the study child, primary parent, secondary parent, and other household members. The different descriptions of children's parents used throughout this chapter are explained in Box 3.1.

3.1 Children's parents

Family type: With how many and which parents do children live?

The majority of Australian children live in one of three major family types: with two biological parents, with one biological parent only, or with a biological parent and a step-parent.² This section examines the percentages of children living in these three types of families,³ and how children's family structures change across the first three waves.

Table 3.1 shows the percentages of children in the three major family types at each wave. The majority of children in both cohorts lived with both biological parents at all three waves. However,

1 A small percentage of children lived with other people in addition to their parents or siblings, such as grandparents, other relatives, boarders or housemates. These percentages were similar for the B and K cohorts across the first three waves of the study, ranging from 8% to 10%.

2 Same-sex couple parents are not distinguished from other parents throughout this chapter. There were fewer than ten families with two mothers and no families with two fathers at each of the first three waves, so these families cannot be analysed separately. In most of these same-sex couple families, the child was described as having a biological mother and a step-mother or adoptive mother, and the parents' relationship was classified as de facto.

3 While the majority of children lived in one of the three major family types, a small percentage (fewer than 1%) lived with different types of parents at each of the first three waves of the study. These children lived only with non-biological parents (e.g., foster parents, grandparents, other relatives), or with one biological parent and another non-biological parent who was not the partner of their biological parent (e.g., mother and grandmother, mother and a sibling who has taken on a parental role, mother and a boarder or house-mate). These family types are referred to as "other family types" throughout this chapter.

Box 3.1 “Parent” terminology used

Parent(s) refers to the child’s primary and/or secondary parents identified by the study respondent. This includes biological and non-biological parents.

Primary parent (Parent 1) is defined as the child’s primary caregiver, or the parent who knows the child best. In the majority of cases, this is the child’s biological mother, but can also be the father or another guardian.

Secondary parent (Parent 2) is the child’s second parent, usually the partner of the primary parent. In most cases, this is the biological father but can also be the mother, another partner of the primary parent, or another guardian.

Biological parent is the child’s biological or adoptive mother or father.* It does not include other biological relationships (e.g., a grandparent).

Non-biological parent is someone who has taken on a parenting role (identified as Parent 1 or Parent 2 by the family) but is not the child’s natural mother or father. This includes grandparents, aunts/uncles, foster parents and step-parents.

Step-parent is a non-biological parent who is the partner of the child’s biological parent. The study respondent does not necessarily identify them as a “step-parent”.

Other type of parent or other family type includes non-biological parents and families in which one parent is the biological parent and the second parent is a non-biological parent who isn’t the partner of the biological parent (e.g., a mother and a grandmother).

Note: * Throughout this chapter, all references to biological parents include adoptive parents. Approximately five children in the B cohort were adopted, and approximately 10 children in the K cohort were adopted.

the percentage of children living with both biological parents decreased as children grew older. In the B cohort, 89% of children lived with both biological parents when they were 0–1 years old at Wave 1, but this dropped to 82% by the time the children were 4–5 years old at Wave 3. Of the K cohort children, 82% lived with both biological parents when they were 4–5 years old at Wave 1, which decreased to 75% when they were 8–9 years old at Wave 3.

The percentage of B cohort children who lived with only one biological parent increased slightly between Waves 1 and 3 (from 10% to 14%). There was less change for the K cohort; 15% of children lived with only one biological parent in Wave 1, and 17% did so in Wave 3.

The slight decline in the percentage of children who lived with two biological parents as the children grew older is matched by an increase in the percentage of children who lived with one biological parent and a step-parent. Fewer than 1% of children lived with one biological parent and a step-parent in the B cohort at Wave 1 (when the children were aged 0–1 years), 3% did so when they were aged 4–5 years (both cohorts), and 7% lived in this type of family when they were aged 8–9 years (K cohort at Wave 3).

Table 3.1 Distribution of children living in three major family types, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Two biological parents	89.0	85.8	82.4	81.9	79.2	75.3
One biological parent only	10.4	13.1	14.0	14.8	16.6	16.7
Biological parent and step-parent	0.3	0.8	3.0	2.8	3.5	7.0
Other family type	0.2	0.3	0.6	0.5	0.6	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,107	4,606	4,386	4,983	4,464	4,331

Note: Percentages may not total 100% due to rounding.

While the percentages of children in each of the family type categories remained fairly stable across the three waves, with only slight changes in the percentages in each category, these cohort trends conceal the fact that many individual children experienced a change in family type during this time (e.g., when their parents separated and/or re-partnered). The remainder of this section looks at how individual children's family types changed between Waves 1 and 3 of the study.

Table 3.2 (B cohort) and Table 3.3 (K cohort) explore how individual children's family types changed between Waves 1 and 3 of the study. The left-hand side of the tables describes the family types in Wave 1 and the remaining columns describe the family types in Wave 3. Because each row totals 100%, it is possible to see how many children remained in the same family type between Waves 1 and 3, and how many children's family types had changed by Wave 3.

Table 3.2 shows the changes between Waves 1 and 3 for the B cohort. The children who lived with two biological parents in Wave 1 had the most stable family type; 90% still lived with both biological parents when they were 4–5 years old, 8% lived with only one biological parent, and 2% lived with a biological parent and a step-parent.

The bottom row of the table shows the transitory nature of lone parenthood for many families; approximately a third of the Wave 1 lone-parent families had become two-parent families by Wave 3. Of the children who lived with one biological parent in Wave 1, only 65% still did at Wave 3. Eleven per cent of the lone parents in Wave 1 had a new partner (who was not related to the study child) in Wave 3. Of the children who lived with only one biological parent when they were 0–1 years old, 22% were living in a household with both of their biological parents by the time they were 4–5 years old. This suggests that a substantial proportion of couples may reconcile after separation or formally begin to live together in the early years of their child's life.

Table 3.2 Change in family type, B cohort, Waves 1 and 3						
Wave 1 (0–1 yrs)	Wave 3 (4–5 years)				Total	No. of observations
	Two biological parents	One biological parent only	Biological parent and step-parent	Other family type		
	%					
Two biological parents	90.4	7.8	1.6	0.2	100.0	4,034
One biological parent only	21.5	64.6	11.0	2.9	100.0	328

Notes: This table only includes the children who lived with one or two biological parents in Wave 1. Percentages may not total 100% due to rounding.

Table 3.3 shows the change in family type between Waves 1 and 3 for the K cohort. Children living with both biological parents in Wave 1 experienced a similar stability to the B cohort children, with 91% remaining in this type of family between Waves 1 and 3. Twenty-seven per cent of the K cohort parents who were lone parents in Wave 1 had re-partnered by Wave 3, compared to 11% for the B cohort. Seven per cent of K cohort children living with only one biological parent at Wave 1 were living with both biological parents in Wave 3 (compared to 22% of B cohort children). This reflects that a smaller proportion of couples are likely to reconcile a previous relationship or to begin living together for the first time as their children get older. A greater percentage of K cohort children lived with a biological parent and a step-parent in Wave 1 compared to the B cohort, so it is possible to examine the changes in this family type between Waves 1 and 3. Seventy-one per cent remained in this family type, and 28% transitioned to living with only one biological parent.

Lone parents: What are their characteristics?

Many Australian children grow up in households with only one parent. In 2004–06, 22% of all families with children under 15 years were lone-parent families (Australian Bureau of Statistics [ABS], 2007). This has critical implications for children, as lone-parent families in Australia experience multiple disadvantages, including in employment, income and housing (ABS, 2007; Hayes, Gray, & Edwards, 2008). Table 3.1 shows that between 10% and 17% of the children in both cohorts of LSAC lived with only one biological parent across the first three waves of the study. For children who had shared parenting arrangements, the family type was defined according to the child's primary household, as identified by the study family. This section looks at the characteristics of the lone parents in LSAC; in particular, their gender and age.

Table 3.3 Change in family type, K cohort, Waves 1 and 3

Wave 1 (4–5 yrs)	Wave 3 (8–9 years)					No. of observations
	Two biological parents	One biological parent only	Biological parent and step-parent	Other	Total	
	%					
Two biological parents	91.0	7.4	1.3	0.2	100.0	3,683
One biological parent only	6.8	63.6	26.5	3.0	100.0	521
Biological parent and step-parent	0.0	28.0	71.3	0.7	100.0	102

Notes: This table does not include the small percentage of children who lived with non-biological parents only or with a biological parent and a non-biological parent (who were not partners) in Wave 1. Percentages may not total 100% due to rounding.

Gender

The vast majority of lone parents were female at the first three waves of the study, for both cohorts. Among the B cohort, 99% of lone parents at Wave 1 and 98% at Waves 2 and 3 were female. In the K cohort, 96% of lone parents in Wave 1, 96% in Wave 2, and 93% in Wave 3 were female.

Age

Figure 3.1 presents a graph of lone motherhood by the mother's age when her study child was born, for the two cohorts at each of the first three waves of the study. Each bar shows the percentage of mothers in five age groups at the time of the study child's birth who were lone mothers. These data are restricted to biological mothers.

The graph for each cohort/wave shows an approximately U-shaped distribution, suggesting that lone motherhood was most likely among the youngest and oldest mothers. Mothers who were younger than 25 years old when their study child was born were most likely to be lone parents; between 27% and 31% in this age group were lone mothers for the two cohorts across the three waves of the study. Mothers aged between 30 and 39 were the least likely to be lone parents, although the percentage who were lone parents tended to increase as the children got older (from around 5% of B cohort children in Wave 1, to around 14% of K cohort children in Wave 3). The percentage of women aged 40 years or older at the birth of their study child who were lone parents ranged from 12% to 21%.

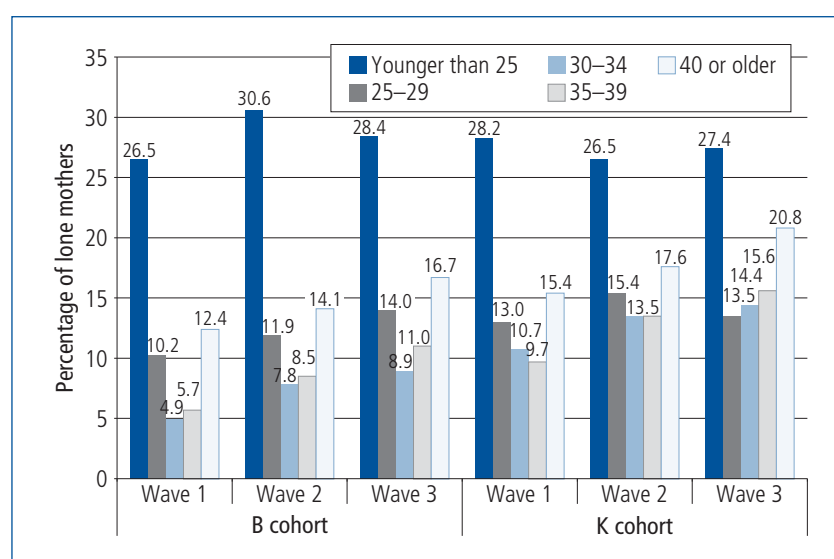


Figure 3.1 Distribution of age of lone mothers at birth of study child, as a proportion of all mothers in age group, B and K cohorts, Waves 1–3

Parents' relationship status: Are children's parents married or not?

Since the middle of the 20th century, there has been an increase in Australia in both the numbers of children born outside marriage and in the divorce rate (ABS, 2009; Hayes, Weston, Qu, & Gray, 2010; Weston & Qu, 2006). This means that increasing numbers of children live in families that are different to the traditional family form of two married parents. This section examines how the relationship status of children's parents changed over the first three waves of the study. This section is not restricted to biological parents.

Table 3.4 shows the percentages of children whose primary parents were in each type of relationship with the child's secondary parent for the two cohorts at Waves 1–3. The table shows that almost three-quarters of primary parents in both cohorts were married.⁴ The percentage who were in de facto partnerships⁵ decreased as children grew older—from 19% when the B cohort were 0–1 years old down to 13% when they were 4–5 years old, and from 11% when the K cohort were 4–5 years old to 10% when they were 8–9 years old.

Table 3.4 Parents' relationship status, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Married ^a	70.6	72.3	72.2	73.6	73.2	71.8
De facto ^b	18.8	14.4	12.7	11.4	9.5	10.4
Lone parent	10.5	13.2	14.0	15.0	16.6	16.5
Other family type ^c	0.1	0.1	1.2	0.1	0.7	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	5,107	4,602	4,386	4,983	4,464	4,331

Notes: ^a Parents were not necessarily married to the same partner across the three waves. ^b Parents were not necessarily in a de facto relationship with the same partner across the three waves. ^c These families include those in which one parent is the biological parent and the second parent is a non-biological parent who isn't the partner of the biological parent (e.g., a mother and a grandmother). Percentages may not total 100% due to rounding.

While the percentages of parents in each type of relationship remained relatively stable across the three waves, some individual parents experienced a change in relationship status during this time. Table 3.5 (B cohort) and Table 3.6 (K cohort) show how parents' relationships have changed across the first three waves of the study. The left-hand side of each table describes the parents' relationship status in Wave 1, while the remaining columns show the parents' relationship status in Wave 3.⁶ Because each row totals 100%, it is possible to see how many parents remained in the same relationship between Waves 1 and 3, and how many changed their relationship status.

Table 3.5 shows the changes between Waves 1 and 3 for the B cohort. The table shows that of all the parents who had been married in Wave 1, 93% were still married to the same partner at Wave 3, 1% had a new partner (legal spouse or de facto), and 6% had become lone parents when the children were 4–5 years old. Twenty-six per cent of the Wave 1 de facto partnerships resulted in marriage by Wave 3, but 17% of children whose parents had been in a de facto partnership in Wave 1 were living with only one parent by Wave 3 (in contrast to 6% for children whose parents had been married in Wave 1). Four per cent of parents in a de facto relationship in Wave 1 had new partners in Wave 3. Twenty-seven per cent of lone parents in Wave 1 had a partner (legal spouse or de facto partner) by the time the children were 4–5 years old.

⁴ Parents were not necessarily married to the same partner across the three waves.

⁵ Parents were not necessarily in a de facto relationship with the same partner across the three waves.

⁶ "New" partners are defined in relation to Wave 1. A "new" partner may be the child's biological parent (see discussion of Table 3.2), or a previous partner with whom the parent has reconciled after separating prior to Wave 1.

Table 3.5 Change in parents' relationship status, B cohort, Waves 1 and 3

Wave 1 (0–1 years)	Wave 3 (4–5 years)						Total	No. of observations
	Married to same partner	De facto with same partner	Married to new ^a partner	New ^a de facto partner	Lone parent	Other family type		
%								
Married	93.1	0.2 ^b	0.4	0.6	5.6	0.1	100.0	3,306
De facto	25.9	52.0	0.7	3.6	17.2	0.7	100.0	745
Lone parent	–	–	11.5	15.5	64.6	8.4	100.0	330

Notes: ^a "New" is only in relation to Wave 1. A "new" partner may be the child's biological parent (see discussion of Table 3.2), or a previous partner with whom the parent has reconciled after separating prior to Wave 1. ^b There were changes to the collection of information about marital status between Wave 1 and later waves, which may have contributed to a small number of respondents reporting that they were married at Wave 1 and then that they were in a de facto relationship at later waves. The small percentage of children who lived in another type of family in Wave 1 are not included in this table. Percentages may not total 100% due to rounding.

Table 3.6 shows the changes between Waves 1 and 3 for the K cohort. The table shows a similar pattern to that for the B cohort for parents who were married in Wave 1. Ninety-two per cent were still married in Wave 3, 1% were in a new relationship and 7% had become lone parents.

Of those who were in a de facto relationship in Wave 1, 16% had married, 4% had a new partner and 19% had become lone parents by Wave 3.

Thirty-two per cent of children with only one parent in Wave 1 had a new parent figure (either married to or in a de facto relationship with their original parent) in Wave 3.

Table 3.6 Change in parents' relationship status, K cohort, Waves 1 and 3

Wave 1 (4–5 years)	Wave 3 (8–9 years)						Total	No. of observations
	Married to same partner	De facto with same partner	Married to new ^a partner	New ^a de facto partner	Lone parent	Other family type		
	%							
Married	91.7	0.4 ^b	0.3	0.9	6.6	0.1	100.0	3,388
De facto	16.1	58.9	0.0	4.3	19.2	1.6	100.0	415
Lone parent	—	—	13.3	19.1	62.4	5.2	100.0	524

Notes: ^a "New" is only in relation to Wave 1. A "new" partner may be the child's biological parent (see discussion of Table 3.3), or a previous partner with whom the parent has reconciled after separating prior to Wave 1. ^b There were changes to the collection of information about marital status between Wave 1 and later waves, which may have contributed to a small number of respondents reporting that they were married at Wave 1 and then that they were in a de facto relationship at later waves. The small percentage of children who lived in another type of family at Wave 1 are not included in this table. Percentages may not total 100% due to rounding.

3.2 Children's families

This section looks at the characteristics of children's households more broadly: children's siblings, parents who had other children living elsewhere, and children who experienced change in the residents of their households.

Siblings

Children's relationships with their siblings influence many aspects of their lives and development. Children may live with biological siblings, adopted siblings, half-siblings, step-siblings or foster siblings. The arrival of a new sibling is a major event in a child's life, whether a new sibling is

born or adopted into the family or a blended family is created. Chapter 2 of this report shows the change in numbers of siblings across the first three waves of the study for both cohorts, and this section provides further details about children's siblings. The siblings discussed in this section are those in the child's primary household (Parent 1's household), and do not include siblings in the secondary household (e.g., with a parent living elsewhere).

Approximately 58% of children in both cohorts had at least one older sibling. Figure 3.2 shows the percentage of children who had a new sibling born between Waves 1 and 2, and between Waves 2 and 3. Children were most likely to have a new sibling born when they were younger; that is, siblings tend to be born close together. Thirty-one per cent of B cohort children had a new sibling born between Waves 1 and 2 (i.e., when they were 1–2 years old), and 24% between Waves 2 and 3 (when they were 3–4 years old). Fewer of the older K cohort children had a new sibling born during the first three waves of the study. Thirteen per cent had a new sibling born between Waves 1 and 2 (when they were 5–6 years) and 9% did so when they were 7–8 years old.

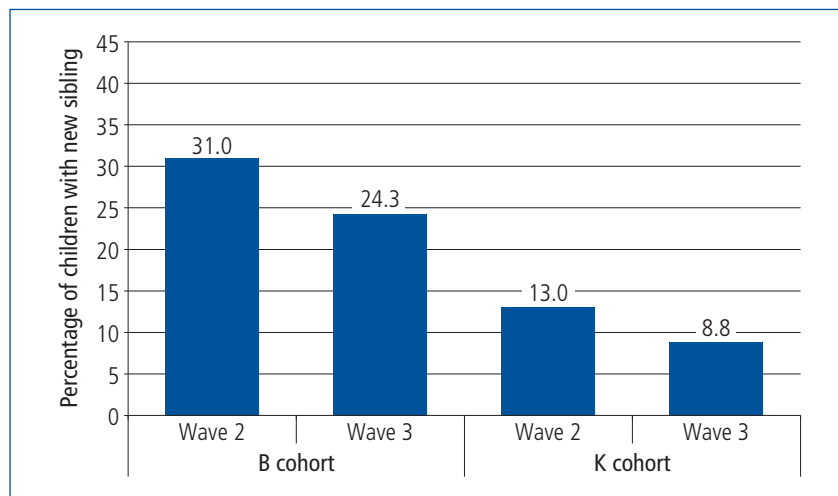


Figure 3.2 Children with a new sibling born since the previous wave, B and K cohorts, Waves 2 and 3

Table 3.7 shows the percentage of children who lived (in their primary household) with four types of siblings: biological siblings,⁷ half-siblings, step-siblings, and foster siblings. The majority of children in both cohorts lived with at least one biological sibling at each of the first three waves of the study. The percentage of B cohort children who did so increased between Waves 1 and 3, from 55% to 83%. In contrast, the percentages of the older K cohort children who lived with at least one biological sibling remained consistent across the three waves, at approximately 85%. This difference between the two cohorts again shows that siblings are likely to be born close together. While few children lived with step-siblings or foster siblings (fewer than 1% for both cohorts at all waves), approximately 10% of children lived with a half-sibling.

Table 3.7 Distribution of children living with different types of siblings, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	%			%		
Biological sibling	54.7	74.5	83.0	83.9	85.3	86.1
Half-sibling	9.8	9.4	10.2	11.2	10.8	11.5
Step-sibling	0.1	0.1	0.4	0.2	0.5	0.9
Foster sibling	0.1	0.1	0.1	0.1	0.1	0.1

Note: Children are included more than once in this table if they had more than one type of sibling (e.g., both a biological sibling and a half-sibling).

⁷ Biological siblings includes adopted siblings.

Parents with other children living elsewhere

Some study parents also had children who did not live in the home with them (i.e., children who did not live with the study child). Table 3.8 shows the percentage of children's mothers and fathers who had children living elsewhere. This question was asked slightly differently in Wave 1 compared to the other two waves. In Wave 1, parents were asked if they had any "biological, step-, adopted or other children" who did not live with them. In Waves 2 and 3, parents were asked if they had any "biological or adopted children" who did not live with them. This resulted in higher percentages for Wave 1.

Fathers were more likely to have children living elsewhere. In Wave 1, 8% of B cohort mothers had biological, step-, adopted or other children living elsewhere, compared to 10% of fathers. Ten per cent of K cohort mothers had biological, step-, adopted or other children living elsewhere in Wave 1, compared to 12% of fathers.

Two per cent of B cohort mothers had biological or adopted children who did not live with them in Wave 2, and this increased to 4% in Wave 3. Nine per cent of B cohort fathers had biological or adopted children who did not live with them in Waves 2 and 3. Five per cent of K cohort mothers had biological or adopted children who did not live with them in Wave 2 and Wave 3. Between 8% and 11% of fathers had biological or adopted children living elsewhere.

Table 3.8 Distribution of parents with children living elsewhere, B and K cohorts, Waves 1–3

	B cohort			K cohort		
	Wave 1 ^a	Wave 2 ^b	Wave 3 ^b	Wave 1 ^a	Wave 2 ^b	Wave 3 ^b
	%			%		
Mother	8.2	2.3	3.7	10.4	5.2	5.6
Father	10.1	8.5	9.1	11.8	8.4	10.5

Notes: ^a Wave 1 in both cohorts includes biological, step-, adopted or other children. ^b Waves 2 and 3 in both cohorts include only biological or adopted children.

3.3 Change in the residents of children's households

Figure 3.3 shows the percentage of children who experienced some sort of change in the residents of their household (e.g., people entering or leaving the household, birth of a new child) in the two years since the previous wave of the study. The figure suggests that households are more likely to change when children are younger (e.g., when new siblings are born). Forty-six per cent of B cohort children experienced a change in their household between 0–1 years and 2–3 years, and 40% experienced a change between 2–3 years and 4–5 years. Twenty-nine per cent of K cohort children experienced a change in their household between 4–5 years and 6–7 years, and this dropped to 26% between 6–7 years old and 8–9 years old.

3.4 Summary

This chapter has examined how family composition and characteristics change as children grow up. The majority of LSAC children lived with both their biological parents, although the percentage that did so declined slightly as the children grew older. Across the first three waves of the study, families with two biological parents were the most stable family type (approximately 90% of children remained in this type of family between Waves 1 and 3). Lone parenthood appeared transitory for some families, as a number of lone parents re-partnered, particularly when children were older. For some children, their two biological parents started living together after initially living apart; this mainly occurred when children were younger. The majority of lone parents were female—lone parenthood was most likely among mothers who were younger than 25 at the birth of their study child and least likely among mothers who were in their 30s when their child was born. The majority of children's parents were married, and the percentage of parents who were de facto partners decreased as children grew older, as some de facto partners got married and others separated.

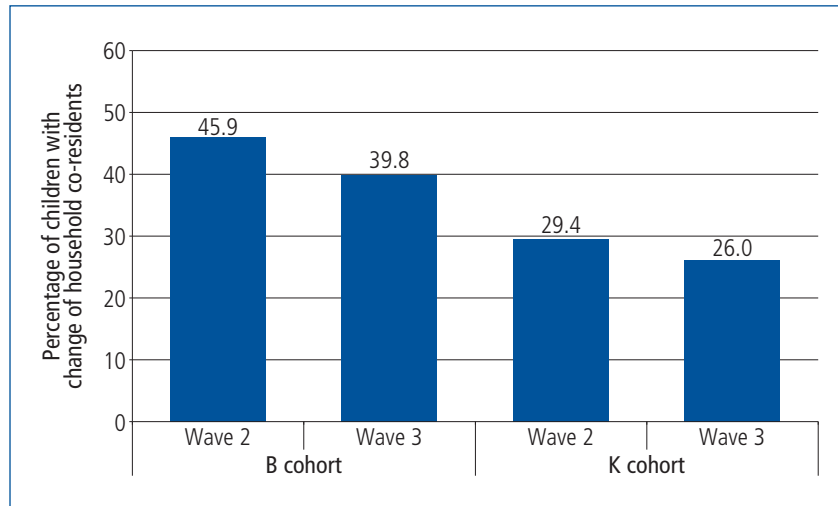


Figure 3.3 Distribution of children who had a change in the household co-residents since the previous wave, B and K cohorts, Waves 2 and 3

The majority of children had one sibling, and siblings tended to be born close together. Siblings were mostly biological or adopted siblings, but around 10% of children lived with a half-sibling. Fathers were more likely than mothers to have children living elsewhere. Change in the residents of children's households was common (e.g., through people entering or leaving the household, birth of a new child), ranging from a high of 46% to a low of 26%. Children were most likely to experience a change in their household when they were younger.

3.5 Further reading

Fletcher, R., Fairbairn, H., & Pascoe, S. (2004). *Fatherhood research in Australia: Research report*. Calligan, NSW: Family Action Centre, University of Newcastle.

Losoncz, I. (2008). Shared parental responsibility: Stability of arrangements among separated Australian families of young children across two years. *Family Matters*, 79, 26–33.

Richardson, N., Higgins, D., Bromfield, L., Tooley, G., & Stokes, M. (2005). The relationship between childhood injuries and family type. *Family Matters*, 72, 44–49.

3.6 References

Australian Bureau of Statistics. (2007). *Australian social trends 2007: One-parent families* (Cat. No. 4102.0). Canberra: ABS. Retrieved from <www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/F4B15709EC89CB1ECA25732C002079B2?opendocument>.

Australian Bureau of Statistics. (2009). *Australian social trends 2009: Couples in Australia* (Cat. no. 4102.0). Canberra: ABS. Retrieved from <www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20March%202009>.

de Vaus, D., & Gray, M. (2003). Family transitions among Australia's children. *Family Matters*, 65, 10–17.

Hayes, A., Gray, M. C., & Edwards, B. (2008). *Social inclusion: Origins, concepts and key themes*. Canberra: Social Inclusion Unit, Department of the Prime Minister and Cabinet.

Hayes, A., Weston, R., Qu, L., & Gray, M. (2010). *Families then and now: 1980–2010*. Melbourne: Australian Institute of Family Studies.

Pryor, J., & Rodgers, B. (2001). *Children in changing families: Life after parental separation*. Oxford: Blackwell.

Weston, R., & Qu, L. (2006). Trends in couple formation. *Family Relationships Quarterly*, 1, 12–15.

Parents and the labour market

Matthew Gray¹ and Jennifer Baxter

Australian Institute of Family Studies

The birth of a child often results in significant changes to parents', and particularly mothers', participation in the labour market. This chapter provides an overview of the patterns of parental employment for families with a youngest child up to 8–9 years of age. A number of specific issues are examined. These are:

- patterns of maternal and paternal employment and how they vary with the age of the youngest child in the family;
- the combined work hours of parents in two-parent families and how this varies with the age of the youngest child;
- the proportion of children growing up in jobless families or families with only part-time employment;
- persistent family joblessness and the characteristics of families that experience persistent joblessness;
- the relationship between family joblessness and child wellbeing; and
- the relationship between hours worked and parental wellbeing and family life.

4.1 Parental employment

This section provides an overview of the labour force status and hours worked by mothers and fathers and how this varies with the age of the youngest child.

Mothers

The birth of a child very often brings about significant changes to the paid employment of mothers. Most mothers withdraw from the labour market or reduce their hours of work following the birth of a child. Table 4.1 (page 30) shows the rates of employment of mothers with an infant (0–1 year old) and how this varies according to the age of their infant. It also shows the proportion of mothers who were on paid or unpaid leave.

For mothers of 3–5 month old children, 23% were employed, 19% were on paid or unpaid maternity or parental leave and 3% were on some other form of leave (Table 4.1). The remaining 55% of mothers with a 3–5 month old child were not employed. The employment rate of mothers increases quite rapidly during the first year of their child's life, to 31% for those with a child 6–8 months of age, 40% for those with a 9–11 month old child and 45% for those with a child aged 12–14 months. The proportion of mothers on unpaid or paid maternity or parental leave falls steadily as mothers returned to work and is just 3% for those with a 12–14 month old.

Maternal labour force participation is strongly related to the age of the youngest child in the family. Therefore, in this chapter, labour force status is examined by the age of the youngest child.

Looking beyond the first year of the child's life, Table 4.2 (page 30) shows mothers' employment rates and hours worked according to the age of her youngest child. As the age of her youngest

¹ At the time of writing, Matthew Gray was Deputy Director (Research) at the Australian Institute of Family Studies. He is now Professor of Indigenous Public Policy at the Centre for Aboriginal Economic Policy Research, Australian National University.

child increased, mothers were increasingly likely to be in paid employment. The employment rates increased from 31% of mothers with an infant (under 1 year old) to 60% for those with a 4-year-old and to 73% for those with a 9-year-old child.

A relatively high proportion of employed mothers with very young children worked short hours—of the mothers with an infant, 31% were employed, and of these, 41% worked fewer than 15 hours per week (13% of mothers with an infant). Another 28% of those at work had paid work hours of 15–24 hours, and 12% worked 25–34 hours, making full-time work (35 hours or more) relatively uncommon, at 19% of those who were back at work.

As mothers return to work, the distribution of hours worked changes, with mothers less likely to be working very short hours and increasingly likely to work longer part-time or full-time hours. As such, among employed mothers, the mean hours worked increased from 20 hours for mothers of children aged less than 1 year, up to 25 hours for mothers with a youngest child aged 4 years, and 31 hours for mothers with a youngest child aged 9 years. Similarly, the median hours worked by mothers increased from 16 hours to 24 hours to 30 hours at each of these ages of children. Very few mothers worked longer full-time hours (more than 45 hours per week).

Table 4.1 Paid employment of mothers with an infant aged 3–14 months old, B cohort, Wave 1

	Age of youngest child ^a			
	3–5 months	6–8 months	9–11 months	12–14 months
	%			
Employed	22.9	30.9	39.5	45.3
Paid or unpaid maternity or parental leave	19.2	12.0	7.1	2.6
Other paid or unpaid leave or absences ^b	2.6	2.9	2.2	4.6
Not employed	55.4	54.2	51.2	47.5
Totals	100.0	100.0	100.0	100.0
No. of observations	569	1,816	1,917	741

Notes: ^a Analysis is based on the age of the study child, because for study children who are infants, the infant is virtually always the youngest child in the household. ^b “Other paid or unpaid leave or absences” includes other paid and unpaid time off work, including holiday and sick leave, unspecified unpaid leave and other absences from work (e.g., there is no work available, worker’s compensation). Percentages may not total 100% due to rounding.

Table 4.2 Mother’s employment status and hours of paid work, by age of youngest child, B and K cohorts, Waves 1–3

	Age of the youngest child (years)									
	< 1	1	2	3	4	5	6	7	8	9
	%									
Not employed ^a	68.8	55.4	47.0	45.3	40.3	36.8	32.5	30.5	26.9	26.6
Employed	31.2	44.6	53.0	54.7	59.7	63.2	67.5	69.5	73.1	73.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Hours worked per week (if employed)										
1–14 hours	12.7	15.1	15.1	14.4	14.1	12.3	12.6	12.5	9.4	6.9
15–24 hours	8.9	13.7	17.7	16.5	17.6	19.3	19.1	20.5	21.0	20.9
25–34 hours	3.6	6.6	8.4	9.1	10.6	11.8	14.7	11.3	15.3	15.8
35–44 hours	4.5	5.7	8.7	10.2	12.4	13.9	14.7	16.6	18.6	18.3
45–54 hours	1.1	2.4	2.2	2.5	3.4	4.2	4.1	5.2	5.4	7.0
55 hours or more	0.4	1.1	0.9	2.1	1.7	1.7	2.3	3.5	3.5	4.6
Mean hours (if employed)	19.7	21.5	22.4	24.5	25.1	26.3	26.5	27.6	28.7	30.6
Median hours (if employed)	16	20	20	22	24	24	25	25	28	30

Notes: ^a The “Not employed” category includes mothers who had a job from which they were on leave. Percentages for hours worked may not total to match percentages employed due to rounding.

Fathers

Unlike mothers, fathers' employment rates or hours worked do not appear to be related, on average, to the age of their youngest child, with their employment rate ranging from 88% to 93% in their child's first 9 years (Table 4.3). Fathers had much longer hours of paid employment than mothers. For example, 26% of fathers with a youngest child aged 4 years worked 45–54 hours per week and 23% worked 55 hours or more per week. In contrast, 3% of mothers with a youngest child aged 4 years worked 45–54 hours per week and 2% worked 55 hours a week or more. At the other end of the hours spectrum, 1% of fathers with a youngest child aged 4 years worked 1–14 hours per week, compared to 14 % of mothers working these short part-time hours. Fathers' hours in paid work do not vary greatly by ages of children, with the mean number of hours worked ranging from 46 to 49 hours per week, and a median of 45 hours per week across all ages.

Table 4.3 Fathers' employment status and hours of paid work, by age of youngest child, B and K cohorts, Waves 1–3

	Age of the youngest child (years)									
	< 1	1	2	3	4	5	6	7	8	9
	%									
Not employed ^a	11.8	11.2	10.4	10.9	10.7	12.0	9.5	10.0	11.2	6.9
Employed	88.2	88.8	89.6	89.1	89.3	88.0	90.5	90.0	88.8	93.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Hours worked per week (if employed)										
1–14 hours	1.3	1.6	1.0	1.3	0.8	1.1	0.9	1.2	0.8	1.2
15–24 hours	1.8	2.0	1.7	2.7	1.9	2.1	1.7	1.9	1.5	1.2
25–34 hours	3.3	3.2	2.9	3.9	2.9	3.0	2.2	3.6	2.4	2.2
35–44 hours	34.4	33.7	35.9	33.1	34.5	33.8	37.1	34.8	33.9	36.3
45–54 hours	27.3	25.9	26.2	24.0	26.1	26.4	26.4	25.2	25.8	25.9
55 hours or more	20.3	22.4	21.8	24.0	22.9	21.6	22.2	23.4	24.5	26.3
Mean hours (if employed)	46.4	46.8	46.8	47.0	47.2	47.0	47.1	47.0	47.7	48.5
Median hours (if employed)	45	45	45	45	45	45	45	45	45	45

Notes: ^a The "Not employed" category includes fathers who had a job from which they were on leave. Percentages for hours worked may not total to match percentages employed due to rounding.

Combined working hours of couple parents

This subsection provides information on the combined working hours of parents in two-parent families. As the age of the youngest child increased, the combined average hours worked by the parents increased, from 49 hours per week for families with a child aged 0–1 years, to 56 hours for a family with a child aged 2–4 years, and to 62 hours for a family with a child aged 5–9 years, compared with an overall mean of 55 hours.

The proportion of two-parent families with a child aged 0–9 years (the average for the B and K cohorts across Waves 1–3) reporting no paid work hours was 7%, and another 5% had combined parental working hours of fewer than 35 hours per week (the equivalent of one full-time job). The proportion with parents working a combined equivalent of two full-time jobs (70 hours or more per week) was 28%.

Figure 4.1 (page 32) shows the distribution of combined weekly work hours of two parents with a youngest child aged 0–1 years, a youngest child aged 2–4 years and youngest child aged 5–9 years. As the age of the youngest child increases, the distribution of working hours shifts to the right, with an increasing proportion of parents having combined working hours above full-time hours.

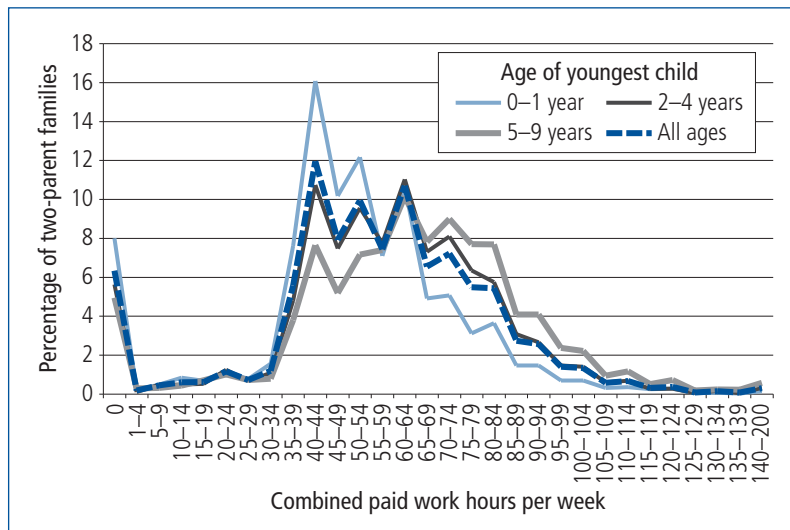


Figure 4.1 Total weekly hours worked by parents in two-parent families, by age of youngest child, B and K cohorts, Waves 1–3

4.2 Children growing up in jobless families or families with part-time only employment

Australia has a relatively high rate of households with children in which no adult is employed (jobless households/families)—12% compared to an OECD average of 6.4%. This is the most important single cause of child poverty in Australia.

This high rate of joblessness has led to concerns about its impact on children (e.g., Dawkins, 1996; Reference Group on Welfare Reform [the McClure Report], 2000). Indeed, one of the six priority areas for the Australian Social Inclusion Agenda is “helping jobless families with children by helping the unemployed into sustainable employment and their children into a good start in life” (Australian Government, 2010).

This section provides more detailed information on the extent to which children are living in households in which there is no parent who is employed. The extent to which children are living in a jobless family for multiple waves of LSAC (persistent joblessness) is also analysed.

Rates of joblessness in lone- and two-parent families

In describing joblessness among families with children, it is important to examine lone- and two-parent families separately, as much of the joblessness in families with children in Australia is related to the relatively low rate of employment of lone mothers and the relatively high proportion of children living in lone-mother families (Whiteford, 2009).

Table 4.4 provides information on the number of jobs held by parents in households according to the age of the youngest child for lone- and two-parent families.² The number of jobs was calculated by assigning a value of 0.5 for a part-time job and 1.0 for a full-time job, so that two-parent families in which both parents are employed part-time would have the equivalent of one full-time job (0.5 + 0.5).³

Only a minority of children living in two-parent families lived in a jobless family, with their jobless rates being:

- 9% for those with a youngest child aged 0–1 years;
- 7% for those with a child aged 2 to 4 years; and
- 6% for those with a child aged 5 to 9 years.

² Lone-parent families include a small percentage of lone-father families.

³ This approach was first used by Renda (2003).

The rates of joblessness were much higher for lone-parent families, with jobless rates being:

- 83% for those with a youngest child aged 0–1 years;
- 59% for those with a child aged 2–4 years; and
- 39% for those with a child aged 5–9 years.

Few children in two-parent families lived in a family in which there was only one part-time job (4–5%). The proportion of children in a lone-parent family in which there was only one part-time job was much higher. Of lone parents with a youngest child aged 0–1 years, 14% were employed part-time. Of those with a youngest child aged 2–4 years, 28% were part-time employed, and of those with a youngest child aged 5–9 years, 39% were part-time employed.

The proportion of children in a 1.5 job two-parent family (one full time and one-part-time job) increased with the age of the youngest child, from 27% for those in a family with an infant, to 40% for those with a youngest child aged 2–4 years and 43% for those living in a family with a youngest child aged 5–9 years.

Only a minority of children lived in a family in which both parents were employed full-time, although the percentage did increase from 6% for those with an infant to 20% for those with a youngest child aged 5–9 years. In lone-parent families, the proportion with a parent employed full-time increased from 3% for those with an infant to 23% for those with a youngest child aged 5–9 years.

Table 4.4 Family labour supply in lone- and two-parent families, by age of youngest child, B and K cohorts, Waves 1–3

	Age of youngest child		
	0–1 years	2–4 years	5–9 years
	%		
Lone-parent family			
Jobless (0 job)	83.0	59.5	39.0
1 part-time job (0.5 jobs)	14.0	28.3	38.7
1 job (1.0 job)	3.0	12.2	23.3
Total	100.0	100.0	100.0
Two-parent family			
Jobless (0 job)	9.1	6.7	5.7
1 part-time (0.5 job)	5.4	4.5	4.2
1 job (1 full-time or 2 part-time) (1.0 job)	52.4	36.1	26.4
1.5 jobs (1.5 jobs)	27.3	40.4	43.4
2 jobs (2.0 jobs)	5.8	12.3	20.3
Total	100.0	100.0	100.0

Note: Parents who were “on leave” at the time of the interview are classified as being not employed.

Persistence of joblessness

This section provides information on the extent to which children were living in a jobless family at each of the waves. A family may be jobless for a variety of reasons. It may be a result of a parent being sacked or made redundant; having ill health; or having caring responsibilities for the child or another family member or friend that prevents them from being in paid employment. The joblessness may be shorter or longer term (persistent), and this is likely to be important in determining the impact of joblessness on the wellbeing of the family and children (e.g., Bolger, Patterson, Thompson, & Kupersmidt, 1995).

Joblessness is measured at the time of interview at each wave and so the measure used in this chapter does not capture those who had a different employment status between interviews than at the time of interview.⁴

⁴ While LSAC does provide information on the number of months each parent was not in paid employment between waves, it does not collect information on the exact months in which the parents were not employed. Therefore, it is not possible, for some two-parent families, to determine whether there were months in which neither parent was employed (i.e., whether the family was jobless).

There is little Australian evidence on the extent of persistence of family or household joblessness over the medium term. The only research we are aware of is based on the Household Income and Labour Dynamics in Australia (HILDA) survey, which examines the medium-term persistence of household joblessness (Wilkins, Warren, & Hahn, 2009). We are not aware of any Australian research that has explored the extent to which the impact on child wellbeing of living in a jobless family is related to the length of time the child experiences family joblessness.⁵

Overall, 86% of the LSAC study children were not living in a jobless family at any of the first three waves of interviews and 14% were living in a jobless family at the time of at least one interview. Around 7% were jobless at the time of one interview, 4% were jobless at the time of two of the interviews and 3–4% were jobless at the time of all three interviews (Table 4.5).

Table 4.5 Persistence of joblessness, by family type, B and K cohorts, Waves 1–3

	Never jobless	One wave	Two waves	Three waves	Total
	%				
B cohort					
Always lone-parent family	19.4	12.4	21.5	46.6	100.0
Lone- and two-parent family	48.1	31.3	15.5	5.0	100.0
Always couple-parent family	93.9	3.9	1.0	1.3	100.0
Total	85.6	7.1	3.5	3.8	100.0
K cohort					
Always lone-parent family	43.1	15.3	19.1	22.5	100.0
Lone- and two-parent family	52.0	31.4	13.4	3.3	100.0
Always couple-parent family	95.0	2.9	0.9	1.2	100.0
Total	86.5	6.8	3.6	3.1	100.0

Notes: Family type measured at the time of the interview. Percentages may not total 100% due to rounding.

As demonstrated in subsection 4.3, rates of joblessness are much higher in lone-parent than two-parent families. Analysis of the relationship between the persistence of joblessness and type of family (lone- or two-parent) is complicated by the fact that family type changes over time (see Chapter 3), with parents separating and re-partnering between waves.

For the purposes of exploring the relationship between joblessness and family type, we classified families according to whether they were: (a) a lone-parent family at the time of every interview (always lone-parent family); (b) a two-parent family at the time of every interview (always two-parent family); or (c) a family that changed between lone- and two-parent status from one wave to another (lone- and two-parent family).

For the B cohort, of children who were always living in a lone-parent family, 19% were never in a jobless family, 12% were in a jobless family for one of the three waves, 22% for two of the waves and 47% for all three waves. For those who were in a two-parent family at all three waves, the vast majority were never in a jobless family (94%) and just 1% were living in a jobless family at all three waves. For those whose parents changed relationship status during the period covered by the first three waves, 48% never lived in a jobless family, 31% did so at one wave, 16% at two waves and 5% at three waves.

For the K cohort, of children who were always in a lone-parent family, 43% were never in a jobless family, 15% were in a jobless family for one wave, 19% for two waves and 23% for three waves. For those always living in a two-parent family, 95% were never in a jobless family, 3% were in a jobless family for one wave, and 1% for two and three waves.

The differences between the B cohort and the K cohort is probably because the K cohort is older and lone mothers' rates of employment increase as their youngest child grows older.

⁵ Research based on the Youth in Focus Survey (Cobb-Clark & Sartbayeva, 2007, 2010) examined the links between parental income support payment history and young people's wellbeing (at the ages of 18 and 20). While income support history and family joblessness are differing measures, they are closely linked. Cobb-Clark and Sartbayeva showed that there were links between persistent parental reliance on income support payments and how the children were doing at 18 and 20 years of age.

4.3 Relationship between parental joblessness and child wellbeing

There is surprisingly little Australian research into the relationship between living in a jobless family and the wellbeing of children, although this topic has been addressed through analyses of how children's outcomes vary with poverty or financial hardship (e.g., Smart, Sanson, Baxter, Edwards, & Hayes, 2008). There is, however, considerable international evidence that children's outcomes are negatively associated with growing up in jobless families, or families experiencing poverty or financial hardship (Bolger et al., 1995; Brooks-Gunn & Duncan, 1997; Evans, 2004).

In this section, the relationship between living in a jobless family and child wellbeing is described. The analysis should not be interpreted as showing a causal impact of living in a jobless family on children's wellbeing. Other factors, such as low levels of parental educational attainment, are associated with an increased likelihood of living in a jobless family and also lower levels of child wellbeing, and these analyses do not attempt to disentangle which factors primarily explain child outcomes. Also, a very significant characteristic of joblessness is that these families are likely to experience more financial hardship than other families, and this is an important factor when considering links to child outcomes. The relationships are presented here to demonstrate that, regardless of why this occurs, children's wellbeing is significantly related to their experience of family joblessness.

Joblessness and parents' characteristics

Table 4.6 shows that there is a clear link between parental educational attainment and the persistence of joblessness, using the K cohort as an example (similar patterns are apparent in the B cohort). In two-parent families, the proportion of mothers with a low level of educational attainment (incomplete secondary education) increased from 20% in families that were not jobless at any wave, to 37% that were jobless at one wave, 47% jobless at two waves and 77% jobless at three waves. For fathers, the pattern is not as strong, although the families that had never been jobless were the least likely to have fathers with incomplete secondary education.

Table 4.6 Proportion of mothers and fathers with low level of educational attainment (incomplete secondary education), by family joblessness and family type, K cohort, Waves 1–3

	Never jobless	Jobless at one wave	Jobless at two waves	Jobless at three waves
	%			
Lone-parent family				
Lone parent ^a	25	38	45	51
Two-parent family				
Mothers	20	37	47	77
Fathers	15	23	30	25

Notes: Educational attainment and type of family were measured at Wave 1. ^a 96% of lone parents are mothers.

There is also a clear link between educational attainment and the experience of joblessness for lone parents. The proportion with a low level of educational attainment increased from 25% of those who were not jobless at any wave, to 38% who were jobless at one wave, 45% jobless at two waves and 51% jobless at three waves.

There is also a clear relationship between the socio-economic status of the neighbourhood and the likelihood of a child living in a jobless family. Families that experience joblessness at two or more waves are much more likely to live in socio-economically disadvantaged geographic areas than families that do not experience joblessness. To demonstrate, regional Australian Census data were used to identify areas of relatively low socio-economic status; that is, postcodes with an index of socio-economic advantage/disadvantage⁶ in the lowest 25% of the distribution of this index. Among

6 For more information about this index, refer to Australian Bureau of Statistics (2006).

the LSAC families, 20% that were never jobless were living in areas of lower socio-economic status, compared to 32% that were jobless at one wave, 29% at two waves and 44% at three waves.

Joblessness and children’s wellbeing

In this chapter, the wellbeing of children is measured using a composite measure (the “outcome index”; Sanson et al., 2005) of how children are developing in the following broad areas (domains): learning and cognitive development; social and emotional functioning; and physical development. There is an outcome index for each of these domains and one for how the child is doing overall (across all three domains). The outcome index and each of the domain-specific indices have a mean of 100 and a standard deviation of 10.

Figures 4.2 and 4.3 show how children’s wellbeing varies according to the persistence of joblessness for each domain and for the overall measure for the B and K cohorts respectively (measured at Wave 3). These figures include children in both lone- and two-parent families. In each cohort, children who were living in a jobless family at any of the first three waves of LSAC had a lower level of wellbeing (as measured by the outcome index) than children who were not living in a jobless family at any of the first three waves. Further, more sustained exposure to joblessness was associated with the poorest outcomes.

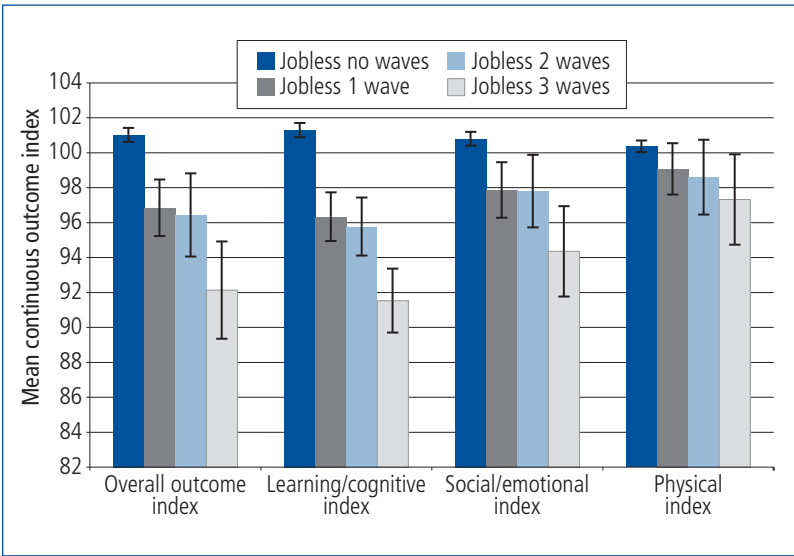


Figure 4.2 Child outcome indices at Wave 3, by joblessness over Waves 1–3, B cohort

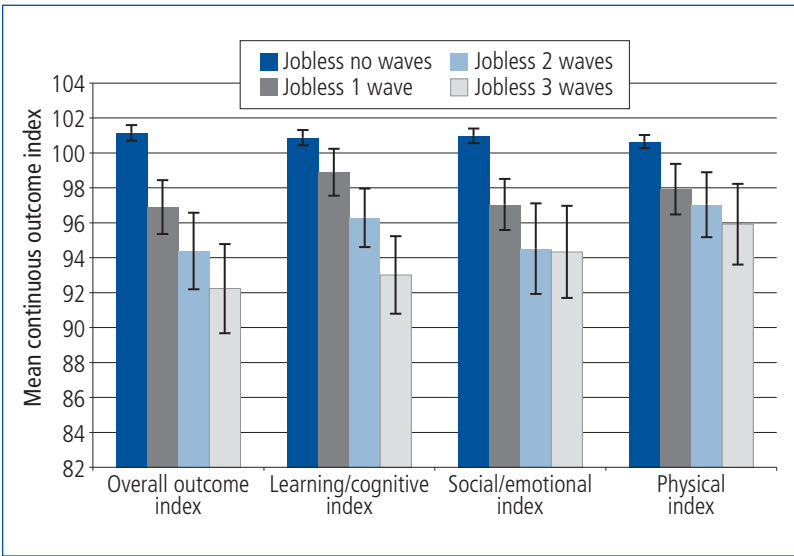


Figure 4.3 Child outcome indices at Wave 3, by joblessness over Waves 1–3, K cohort

The difference between children who were not in a jobless family at the time of any of the three waves and those in a jobless family at all waves is about one standard deviation (10 points). This is a very substantial difference, and is equivalent to going from the average to being in the bottom 15% of children in terms of the overall measure of wellbeing.

Differences in each of the specific domains of development (learning/cognitive, social/emotional and physical) are also apparent according to the persistence of joblessness.

Of course, these associations reflect many different underlying factors other than just joblessness. As demonstrated above, children in jobless families and particularly persistently jobless families have, on average, mothers with much lower levels of educational attainment and they live in more disadvantaged neighbourhoods. These are factors associated with lower levels of child wellbeing and development.

4.4 Parental employment and family wellbeing

Australia has a greater polarisation of working hours among the employed than in many other countries—while rates of part-time employment are relatively high, those who are employed full-time quite commonly work long hours. Concerns have been raised about the potentially detrimental impact that long working hours and overwork may have on family life and, ultimately, child wellbeing (Galinsky et al., 2005). Working long hours may place greater pressure and stress on parents and may have a negative impact on family life.

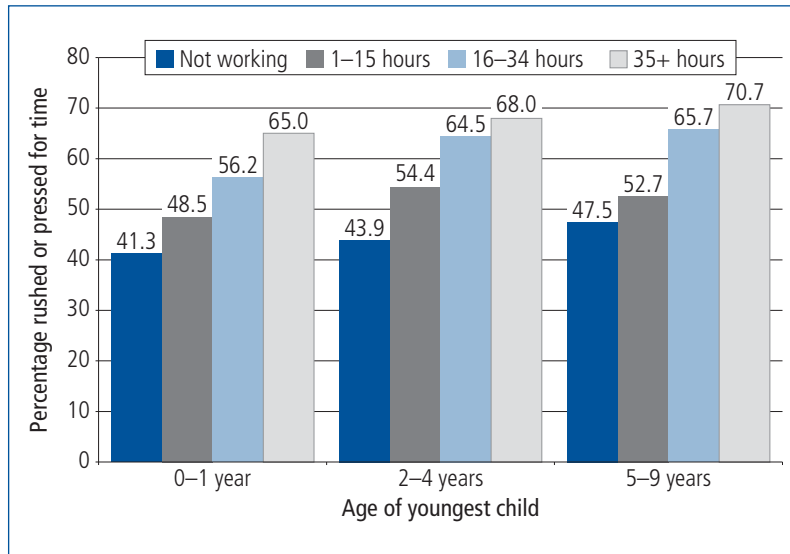
In this section, three measures from LSAC are analysed:

- *Whether parents feel rushed or pressed for time*—Parents were asked how often they felt rushed or pressed for time. The response options were: “always”, “often”, “sometimes”, “rarely” or “never”. The variable used is being “always” or “often” rushed.
- *If employed, whether parents miss out on family activities due to work*—Parents were asked to report on the extent to which they agreed or disagreed with the statement: “Because of my work responsibilities, I have missed out on home or family activities that I would like to have taken part in”. The response options were: “strongly agree”, “agree”, “neither agree nor disagree”, “disagree” or “strongly disagree”. The variable used is whether the respondent “agrees” or “strongly agrees” that they have missed out on home or family activities.
- *The extent to which parents perceive that their life is difficult*—Parents were asked: “How difficult do you feel your life is at present?” The response options were: “no problems or stresses”, “few problems or stresses”, “some problems and stresses”, “many problems and stresses” and “very many problems and stresses”. The variable used is having “many” or “very many” problems and stresses.

For both mothers (Figures 4.4 and 4.5, see page 38) and fathers (Figures 4.6 and 4.7, see page 39), working longer hours is associated with a greater feeling of being rushed or pressed for time, and of missing out on family activities due to work. The differences across work hours were far greater than the differences by age of the youngest child. For fathers, those working 55 hours or more a week were considerably more likely to report being rushed or pressed for time, or to be missing out on family activities, than those working shorter hours.

For mothers, the difference in being rushed or pressed for time for those with an infant (0–1 year old) varies from 41% of those who were not working saying they were rushed or pressed for time compared to 65% of those working full-time (35+ hours). The proportion of mothers who said that they missed out on family activities increases from 18% for those working 1–15 hours to 57% of the mothers working full-time. For fathers with an infant, the proportion saying that they were rushed or pressed for time increases from 29% of those who were not working to 54% for those working 45+ hours per week. For fathers with an infant, the proportion saying that they missed out on family activities due to work increases from 46% of those working part-time (1–34 hours per week) to 69% for those working 45+ hours per week.

It is perhaps not surprising that parents who are working long hours and who have young children are more likely to be rushed or pressed for time and to miss out on family events due to their work than their counterparts who are not working or are working fewer hours. It is more surprising that *any* parent in this situation would say that were not often or always rushed for time!



Note: “Not working” includes those on leave as well as those without employment.

Figure 4.4 Mothers feeling rushed or pressed for time, by age of youngest child and weekly work hours, B and K cohorts, Waves 1–3

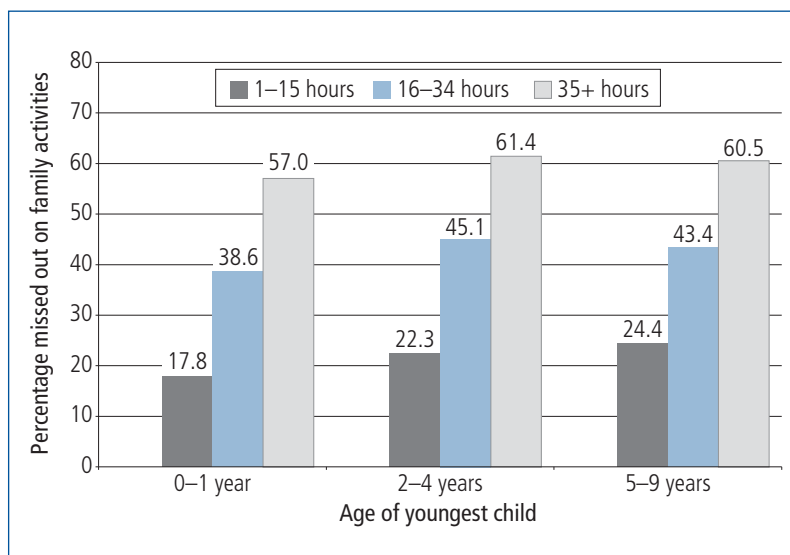
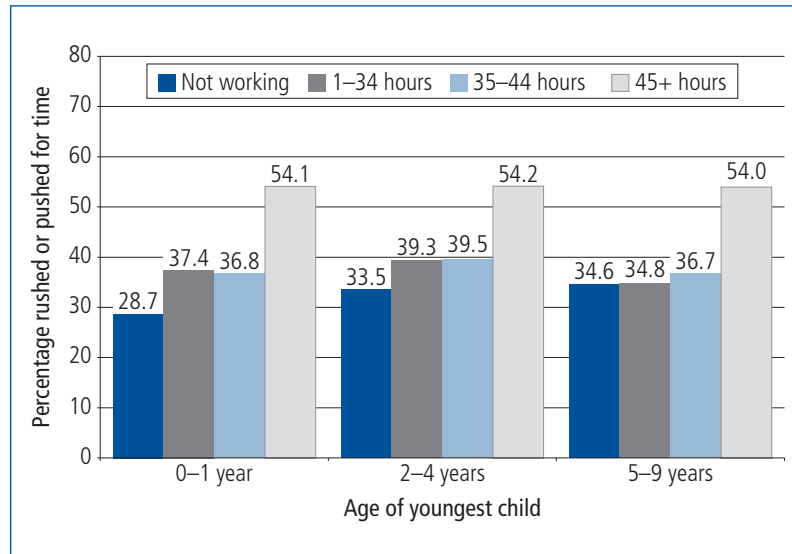


Figure 4.5 Employed mothers missing out on family activities due to work, by age of youngest child and weekly work hours, B and K cohorts, Waves 1–3

While additional working hours can put pressure on parents and family life, it also brings in additional income, which can improve living standards, provide families with more opportunities and allow services such as child care and assistance with domestic tasks (e.g., cooking and cleaning) to be purchased on the market.

It is therefore important to consider alternative measures that can reflect the wellbeing of parents. As outlined above, we also examine the relationship between the number of hours worked and how difficult mothers and fathers feel that their life is at present (Figure 4.8, see page 40).⁷ For both mothers and fathers, there is a U-shaped relationship between the number of hours worked and having many or very many problems and stresses. Parents who were not employed and parents working longer hours (35+ hours for mothers and 45+ hours for fathers) were more likely to have many or very many problems and stresses in their life at the time of interview. The relationship

⁷ The differences according to the age of the youngest child are small and so the analysis of this question combines the cohorts and waves.



Note: "Not working" includes those on leave as well as those without employment.

Figure 4.6 Fathers feeling rushed or pressed for time, by age of youngest child and weekly work hours, B and K cohorts, Waves 1-3

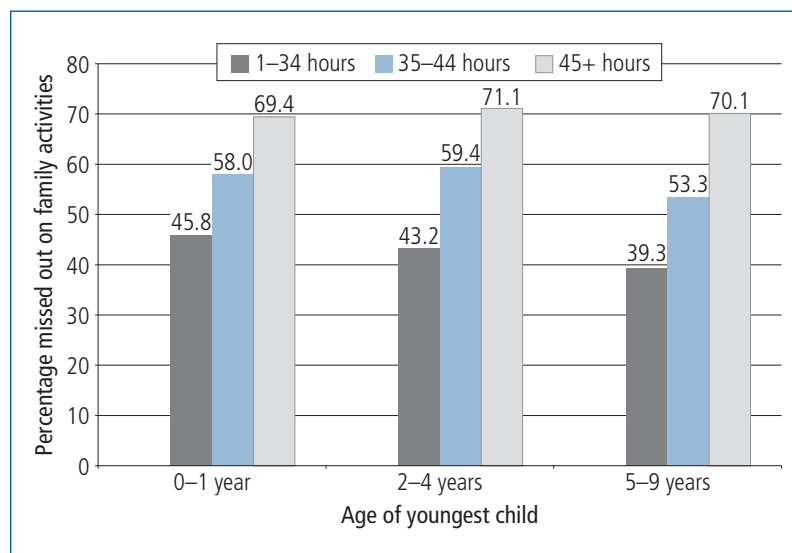


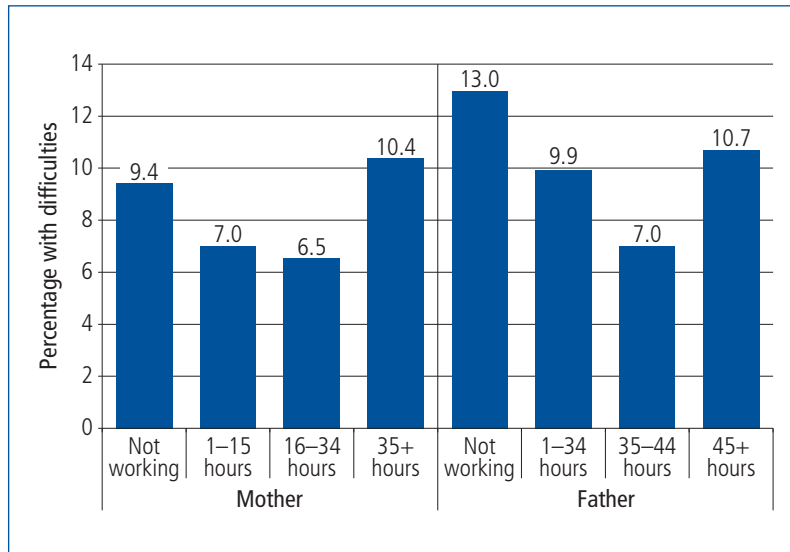
Figure 4.7 Employed fathers missing out on family activities due to work, by age of youngest child and weekly work hours, B and K cohorts, Waves 1-3

between the number of hours worked and experiencing difficulties in life is much smaller than for feeling rushed or pressed for time, or for missing out on family activities.

4.5 Summary

This chapter has highlighted the value of having large-scale longitudinal data that provide information on parental labour force participation, parental wellbeing, family life and child wellbeing.

A relatively high proportion of employed mothers in LSAC with very young children worked short hours. As mothers returned to work, the distribution of hours worked changed, with mothers becoming less likely to work very short hours and increasingly likely to work longer part-time or full-time hours. Unlike mothers, fathers' employment rates or hours worked do not appear to be related to the age of their youngest child, with around nine in ten being employed across all age groups.



Note: "Not working" includes those on leave as well as those without employment.

Figure 4.8 Difficulty of life at present for mothers and fathers, by weekly work hours, B and K cohorts, Waves 1-3

This chapter provides new analyses on the extent to which young Australian children are living in households in which there is no parent in paid employment. It also provides some of the first Australian evidence on living in a persistently jobless family. It is clear that only a minority of children were living in a jobless family for successive waves of LSAC, but that living in a persistently jobless family is much more common for lone-parent rather than two-parent families.

Children living in jobless families in at least one LSAC wave had worse outcomes, on average, than did children who were not living in a jobless family at any of the first three waves. The more waves that the child spent living in a jobless family the worse, on average, their outcomes were. While joblessness may in and of itself have a negative impact on children, it is almost certainly the case that the worse outcomes for children in jobless families is due at least in part to other characteristics of the family that both increase their likelihood of being jobless and their children not doing as well as other children. The education levels of mothers was much lower in families that were jobless and jobless families were more likely to live in disadvantaged neighbourhoods. Parents in these families often face multiple barriers to being in paid employment and these barriers are also likely to have a detrimental impact upon their children's development and wellbeing.

These findings provide support for social inclusion policies, which aim to address the multiple barriers faced by long-term and persistently jobless families. This will be important in minimising the inter-generational transmission of disadvantage.

4.6 Further reading

Alexander, M., & Baxter, J. (2005). Impacts of work on family life among partnered parents of young children. *Family Matters*, 72, 18-25.

Baxter, J. (2007). When dad works long hours: How work hours are associated with fathering 4-5-year-old children. *Family Matters*, 77, 60-69.

Baxter, J., & Gray, M. (2006). Paid work characteristics of mothers with infants. *Family Matters*, 74, 34-41.

Baxter, J., Gray, M., Alexander, M., Strazdins, L., & Bittman, M. (2007). *Mothers and fathers with young children: Paid employment, caring and wellbeing* (Social Policy Research Paper No. 30). Canberra: Department of Families, Community Services and Indigenous Affairs.

Brown, J. E., Bittman, M., & Nicholson, J. (2007). Time or money: The impact of parental employment on time that 4 to 5 year olds spend in language building activities. *Australian Journal of Labour Economics*, 10, 149-165.

Diamond, C., Baird, M., & Whitehouse, G. (2007). Maternity leave and return to work in Australia: Accessibility and use in a state utility. *Australian Bulletin of Labour*, 33(2), 134-157.

Strazdins, L., Shipley, M., & Broom, D. (2007). What does family-friendly really mean? Wellbeing, time, and the quality of parents' jobs. *Australian Bulletin of Labour*, 33(2), 202-225.

Whitehouse, G., Baird, M., Diamond, C., & Soloff, C. (2007). Parental leave in Australia: Beyond the statistical gap. *Journal of Industrial Relations*, 49(1), 103–112.

Whitehouse, G., Diamond, C., & Baird, M. (2007). Fatherhood and the use of leave in Australia. *Community, Work and Family*, 10(4), 387–407.

4.7 References

Australian Bureau of Statistics. (2006). *Information paper: An introduction to Socio-Economic Indexes for Areas (SEIFA), 2006* (Cat. No. 2039.0). Canberra: ABS.

Australian Government. (2010). *Social inclusion priorities*. Canberra: Australian Government. Retrieved from <www.socialinclusion.gov.au/SLAgenda/Priorities/Pages/default.aspx>.

Bolger, K., Patterson, C., Thompson, W., & Kupersmidt, J. (1995). Psychosocial adjustment among children experiencing persistent and intermittent family economic hardship. *Child Development*, 66(4), 1107–1129.

Brooks-Gunn, J., & Duncan, G. (1997). The effects of poverty on children. *The Future of Children*, 7(2), 55–71.

Cobb-Clark, D., & Sartbayeva, A. (2007). *The relationship between income support history characteristics and outcomes of Australian youth* (Youth in Focus Project Discussion Paper No. 2). Canberra: Australian National University.

Cobb-Clark, D., & Sartbayeva, A. (2010). *The relationship between income-support history and the characteristics and outcomes of Australian youth: Outcomes of Wave 2 of the Youth in Focus survey* (Youth in Focus Project Discussion Paper No. 9). Canberra: Australian National University.

Dawkins, P., (1996). The distribution of work in Australia. *Economic Record*, 72, 272–286.

Evans, G. (2004). The environment of childhood poverty. *American Psychologist*, 59(2), 77–92.

Galinsky, E., Bond, J., Kim, S., Backon, L., Brownfield, E., & Sakai, K. (2005). *Overwork in America: When the way we work becomes too much*. New York: Families and Work Institute.

Reference Group on Welfare Reform. (2000). *Participation support for a more equitable society*. Canberra: Department of Family and Community Services.

Renda, J. (2003). Polarisation of families according to work status: Where does part-time employment fit in? *Family Matters*, 64, 17–21.

Sanson, A., Misson, S., Wake, M., Zubrick, S., Silburn, S., Rothman, S., & Dickenson, J. (2005). *Summarising children's wellbeing: The LSAC Outcome Index* (LSAC Technical Paper No. 2). Melbourne: Australian Institute of Family Studies.

Smart, D., Sanson, A., Baxter, J., Edwards, B., & Hayes, A. (2008). *Home-to-school transitions for financially disadvantaged children*. Sydney: The Smith Family.

Whiteford, P. (2009). *Family joblessness in Australia*. Canberra: Social Inclusion Unit, Department of the Prime Minister and Cabinet.

Wilkins, R., Warren, D., & Hahn, M. (2009). *Families, incomes and jobs: Vol. 4. A statistical report on Waves 1 to 6 of the HILDA survey*. Melbourne: Melbourne Institute of Applied Economic and Social Research.

Parenting practices and behaviours

Nina Lucas

Murdoch Childrens Research Institute

Jan M. Nicholson

Murdoch Childrens Research Institute and the Parenting Research Centre

Brigit Maguire

Australian Institute of Family Studies

What does parenting look like in Australian families? How does it change as children get older? How do parents judge the quality of their own parenting? Do family circumstances affect parenting? This chapter describes the parenting practices of mothers and fathers between 2004 and 2008, for children aged 0–9 years. It also examines variations in these practices according to parent and child characteristics, and family circumstances.

“Parenting” is a term applied to a complex set of behaviours that characterise how parents interact on a daily basis with their children, and the beliefs and attitudes that underpin these behaviours. An enormous amount of research over the last 40 years has demonstrated that parenting plays a crucial role in children’s healthy development.

Nurturing, warm parenting that is sensitive and responsive has long been recognised as providing an essential foundation for children’s wellbeing (Osofsky & Thompson, 2000; Pettit & Bates, 1989; Rothbaum & Weisz, 1994). The seminal work by Patterson and others (Patterson, 1982; Patterson, De Baryshe, & Ramsey, 1989) highlighted cycles of “coercive” exchanges, whereby angry, hostile, punitive parenting contributes to and exacerbates oppositional behaviours and problems of conduct in preschool and school-age children. Parenting that involves the consistent application of fair and reasonable rules and expectations, has been shown to be effective in reducing such problems (Sanders, Gooley, & Nicholson, 2000). More recently, there has been recognition of the role of overprotective and anxious parenting in the development of internalising problems such as childhood depression and anxiety (Bayer, Sanson, & Hemphill, 2009; Rapee, Schniering, & Hudson, 2009). These parenting behaviours both shape and are shaped by parents’ confidence in their skills as parents and their good or bad experiences in raising their children.

Few Australian studies have described patterns of “typical” parenting for the population, or documented how parenting varies for major subpopulations. The large-scale studies that have examined this have each been conducted within a single state (Sanders, Markie-Dadds, Rinaldis, Firman, & Baig, 2007; Silburn et al., 1996) and may be dated, given the nature of our rapidly changing family environments. This chapter addresses this gap by examining six dimensions of parenting (warmth, hostility, inductive reasoning, consistency, overprotection and self-efficacy) for the parents of study children in the Longitudinal Study of Australian Children (LSAC) at ages 0–1, 2–3, 4–5, 6–7 and 8–9 years.

It should be noted that we refer to these dimensions as “parenting practices” or “parenting behaviours” as distinct from “parenting styles”. “Parenting styles” typically refers to multi-dimensional patterns, such as an authoritarian style characterised by a high degree of control and rule-setting, combined with a lack of warmth and responsiveness (Baumrind, 1973), but these are often loosely defined and lack validated measurement approaches.

This chapter aims to:

- provide descriptive information on parenting practices, and assess Australian parents' confidence in their parenting skills across the first 9 years of their children's lives;
- document changes in parenting practices according to child age; and
- assess whether patterns of parenting differ according to socio-economic circumstances, child's gender, family type (lone-mother or two-parent households), mothers' age at the birth of the child, and mothers' hours of work. (See Chapter 2 for details about these groups.)

5.1 Parenting measures

LSAC data on parenting measures were collected via interview for mothers at Wave 1 (with a few exceptions where the child's mother was not the child's primary carer), and via self-complete questionnaires for mothers and fathers at all other waves. Parenting practices and competent parenting are related to the age of the child. Thus, the parenting measures used differed according to the child's age at the time of measurement. For example, inductive reasoning (how parents discuss rules and punishment with their children) was not measured at 0–1 years and maternal separation anxiety was used as a proxy for overprotective parenting for 0–1 year olds. For some measures, items were added to or dropped from scales according to their developmental appropriateness.

For all measures, final scores were the mean of item scores, with higher scores indicating more warmth, more hostility, more frequent use of inductive reasoning, more consistency, more overprotection and greater self-efficacy. Scores were calculated where there were no items missing on three-item scales, no more than one item missing on four-item scales and no more than two items missing on five- or six-item scales. Items and response formats for each measure at each age are described next.

Parental warmth

B cohort: Waves 1, 2 and 3

K cohort: Waves 1, 2 and 3

Mothers and fathers were each asked:

- How often do you express affection by hugging, kissing and holding this child?
- How often do you hug or hold this child for no particular reason?
- How often do you tell this child how happy he/she makes you?
- How often do you have warm, close times together with this child?
- How often do you enjoy doing things with this child?
- How often do you feel close to this child both when he/she is happy and when he/she is upset?

Responses were on a 5-point Likert scale, ranging from 1 = "never" to 5 = "always/almost always".

Hostile parenting

B cohort: Waves 1, 2 and 3

K cohort: Waves 1, 2 and 3

In the B cohort, mothers and fathers were each asked how much the following statements described how they felt or behaved with the study child:

- I have been angry with this child.
- I have raised my voice with or shouted at this child.
- When this child cries, he/she gets on my nerves.
- I have lost my temper with this child.
- I have left this child alone in his/her bedroom when he/she was particularly irritable or upset (*Waves 1 and 2 only*).

Responses were on a 10-point Likert scale, ranging from 1 = "not at all" to 10 = "all the time".

In the K cohort, mothers and fathers were each asked:

- Of all the times you talk to this child about his/her behaviour, how often is this praise? (*reverse scored*)
- Of all the times you talk to this child about his/her behaviour, how often is this disapproval?
- How often are you angry when you punish this child?
- How often do you feel you are having problems managing this child in general?
- How often do you tell this child that he/she is bad or not as good as others? (*Waves 2 and 3 only*)
- How often do you think that the level of punishment you give this child depends on your mood? (*Waves 2 and 3 only*)

Responses were on a 5-point Likert scale, ranging from 1 = “never/almost never” to 5 = “all the time”.

Inductive reasoning

B cohort: Waves 2 and 3

K cohort: Waves 1, 2 and 3

Mothers and fathers were each asked how often they:

- talk it over and reason with this child when he/she misbehaved;
- give this child reasons why rules should be obeyed (*Waves 2 and 3 only*);
- explain to this child why he/she was being corrected;
- explain to this child the consequences of his/her behaviour (*Wave 3 only*); and
- emphasise to this child the reasons for rules (*Wave 3 only*).

Responses were on a 5-point Likert scale, ranging from 1= “never/almost never” to 5 = “always/ almost always”.

Consistent parenting

K cohort: Waves 1, 2 and 3

Mothers and fathers were each asked:

- When you give this child an instruction or request to do something, how often do you make sure that he/she does it?
- If you tell this child he/she will get punished if he/she doesn't stop doing something, but he/she keeps doing it, how often will you punish him/her?
- How often does this child get away with things that you feel should have been punished? (*reverse scored*)
- How often is this child able to get out of a punishment when he/she really sets his/her mind to it? (*reverse scored*)
- When you discipline this child, how often does he/she ignore the punishment? (*reverse scored*)

Responses were on a 5-point Likert scale ranging from 1= “never/almost never” to 5= “all the time”.

Overprotective parenting

B cohort: Wave 1 (mothers only), Waves 2 and 3

K cohort: Waves 2 and 3

In the B cohort at Wave 1 (age 0–1 years), a measure of maternal separation anxiety was used as a proxy for overprotective parenting for mothers. Mothers were asked to what extent they agreed with the following statements:

- Child is happier with me than with babysitters.
- When away from child, I worry about whether or not the babysitter/carers is able to soothe and comfort the child if he/she is lonely or upset.

- Only a mother just naturally knows how to comfort her distressed child.
- I worry when someone else cares for child.
- I am naturally better at keeping child safe than any other person.
- A child is likely to get upset when he/she is left with a babysitter or carer.

Responses were on a 5-point Likert scale, ranging from 1 = “strongly agree” to 5 “strongly disagree”.

At Waves 2 and 3, for both cohorts, mothers and fathers were both asked how often:

- do you try to protect this child from life’s difficulties?
- do you put this child’s wants and needs before your own?
- does leaving this child with other people upset you no matter how well you know them?

Responses were on a 5-point Likert scale, ranging from 1 = “never/almost never” to 5 = “always/almost always”.

Parenting self-efficacy

B cohort: Waves 2 and 3

K cohort: Waves 2 and 3

Mothers and fathers were each asked how often:

- does this child behave in a manner different from the way you want him/her to? (*reverse scored*)
- do you think that this child’s behaviour is more than you can handle? (*reverse scored*)
- do you feel that you are good at getting this child to do what you want him/her to do?
- do you feel that you are in control and on top of things when you are caring for this child?

Responses were on a 5-point Likert scale, ranging from 1= “never/almost never” to 5 = “always/almost always”.

5.2 Descriptive statistics

Tables 5.1 and 5.2 present the mean, standard error (SE), median and the range of scores for each parenting outcome for mothers and fathers and for each cohort. Sample weights and adjustment for complex sampling design were applied to all analyses. Note that descriptions of parenting differences between waves and cohorts, and between mothers and fathers are based on observation only, and are not tested statistically.¹

Parental warmth

In both cohorts and at every wave, both mothers and fathers reported high levels of warmth towards their children, reporting on average that they “often” or “almost always/always” displayed warmth towards their child. Warmth scores were slightly higher in the B cohort than in the K cohort, and mothers reported slightly higher mean warmth than fathers at all ages. Mothers and fathers of 4–5 year olds in the B cohort reported slightly higher warmth than mothers and fathers of 4–5 year olds in the K cohort.

¹ The following descriptions of parenting differences between waves are based on observations of the patterns within the data and are not formally tested. As described earlier, the constructs measured and the items used with scales changed over time, as developmentally appropriate. It is beyond the scope of this chapter to undertake the analyses required to establish whether different measures of the same construct and measures with different item sets are able to be validly compared. Similarly, comparisons between scores on the parenting measures for mothers and fathers are described, not formally tested. Such testing would only be possible on the subsample of mothers whose partners completed questionnaires, giving a potentially misleading picture of mothers’ parenting. (Indeed, as shown in section 5.3, mothers who were single parents differed from those in two-parent families on a number of parenting measures.) In addition, mothers’ and fathers’ scores are non-independent and, again, it is beyond the scope of this chapter to conduct the more complex analyses required to test for differences between mothers’ and fathers’ scores. We opted to present the mean scores for mothers and fathers separately in order to provide a more accurate portrayal of typical parenting for these two groups.

Table 5.1 Descriptive statistics for mothers' and fathers' parenting scores at each wave, B cohort, Waves 1–3

	Mother					Father				
	<i>n</i>	Mean	SE	Median	Range	<i>n</i>	Mean	SE	Median	Range
Parental warmth										
0–1 years	5,072	4.56	0.01	4.67	2.17–5.00	3,646	4.25	0.01	4.33	1.67–5.00
2–3 years	4,470	4.60	0.01	4.67	2.17–5.00	3,146	4.32	0.01	4.33	1.00–5.00
4–5 years	3,800	4.51	0.01	4.67	2.17–5.00	2,766	4.23	0.01	4.33	1.67–5.00
Hostile parenting										
0–1 years	5,065	1.93	0.02	1.60	1.00–10.00	3,646	1.99	0.02	1.60	1.00–10.00
2–3 years	3,504	3.10	0.03	2.80	1.00–9.60	3,124	3.01	0.02	2.80	1.00–8.80
4–5 years	3,803	3.19	0.03	3.00	1.00–10.00	2,761	2.91	0.03	2.67	1.00–10.00
Inductive reasoning										
2–3 years	4,444	4.22	0.01	4.33	1.00–5.00	3,135	3.98	0.01	4.00	1.00–5.00
4–5 years	3,802	4.22	0.01	4.20	1.00–5.00	2,766	4.01	0.01	4.00	1.00–5.00
Overprotective parenting										
0–1 years	4,938	2.56	0.02	2.50	1.00–5.00	–	–	–	–	–
2–3 years	3,477	3.68	0.01	3.67	1.00–5.00	3,080	3.55	0.02	3.67	1.00–5.00
4–5 years	3,781	3.64	0.02	3.67	1.00–5.00	2,735	3.47	0.02	3.33	1.00–5.00
Parenting self-efficacy										
2–3 years	3,503	3.91	0.01	4.00	1.50–5.00	3,121	3.97	0.01	4.00	1.25–5.00
4–5 years	3,803	4.01	0.01	4.00	1.25–5.00	2,763	4.11	0.01	4.25	1.00–5.00

Note: Data collected in 2004 for 0–1 year olds; 2006 for 2–3 year olds; 2008 for 4–5 year olds.

Table 5.2 Descriptive statistics for mothers' and fathers' parenting scores at each wave, K cohort, Waves 1–3

	Mother					Father				
	<i>n</i>	Mean	SE	Median	Range	<i>n</i>	Mean	SE	Median	Range
Parental warmth										
4–5 years	4,904	4.44	0.01	4.50	1.00–5.00	3,397	4.08	0.01	4.17	1.00–5.00
6–7 years	4,283	4.45	0.01	4.50	2.00–5.00	2,996	4.12	0.01	4.17	1.00–5.00
8–9 years	3,739	4.33	0.01	4.33	1.33–5.00	2,730	4.02	0.02	4.00	1.33–5.00
Hostile parenting										
4–5 years	4,902	2.19	0.01	2.25	1.00–5.00	3,392	2.28	0.01	2.25	1.00–4.50
6–7 years	4,278	2.01	0.01	2.00	1.00–4.50	2,976	1.92	0.01	1.83	1.00–4.50
8–9 years	3,742	1.97	0.01	1.83	1.00–4.33	2,724	2.00	0.01	2.00	1.00–4.33
Inductive reasoning										
4–5 years	4,897	4.25	0.01	4.00	1.00–5.00	3,378	3.99	0.01	4.00	1.00–5.00
6–7 years	4,263	4.23	0.01	4.33	1.00–5.00	2,982	3.97	0.01	4.00	1.00–5.00
8–9 years	3,741	4.13	0.01	4.00	1.00–5.00	2,729	3.92	0.01	4.00	1.00–5.00
Consistent parenting										
4–5 years	4,900	4.02	0.01	4.00	1.20–5.00	3,394	3.96	0.01	4.00	1.00–5.00
6–7 years	4,278	4.11	0.01	4.20	1.25–5.00	2,972	4.06	0.01	4.20	1.00–5.00
8–9 years	3,739	4.14	0.01	4.20	1.60–5.00	2,720	4.07	0.01	4.20	1.00–5.00
Overprotective parenting										
6–7 years	3,418	3.55	0.02	3.67	1.00–5.00	2,915	3.47	0.02	3.33	1.00–5.00
8–9 years	3,691	3.59	0.02	3.67	1.00–5.00	2,695	3.45	0.02	3.33	1.00–5.00
Parenting self-efficacy										
6–7 years	3,443	4.11	0.01	4.25	1.00–5.00	2,942	4.17	0.01	4.25	1.50–5.00
8–9 years	3,723	4.08	0.01	4.25	1.00–5.00	2,720	4.17	0.01	4.25	1.50–5.00

Note: Data collected in 2004 for 4–5 year olds; 2006 for 6–7 year olds; 2008 for 8–9 year olds.

Hostile parenting

Levels of hostile parenting were generally low for both cohorts and for both mothers and fathers. In the B cohort, hostility scores for both mothers and fathers were lower for 0–1 year olds than for 2–3 and 4–5 year olds. In the K cohort, hostility scores for mothers were slightly lower for 8–9 year olds than for 4–5 and 6–7 year olds, and highest at age 4–5 years. These results suggest a slight peak in parental hostility when children are aged 2–3 and 4–5 years.

It should be noted that scores were not extreme and parents reporting “higher hostility” generally did not report severe hostility.

Inductive reasoning

At all ages and in both cohorts, mothers reported that on average they “often” or “almost always/always” used inductive reasoning with their child, as indicated by mean scores. Fathers’ mean scores indicated a slightly lower use of inductive reasoning than mothers on average, at all ages and both cohorts. There was very little difference in inductive reasoning scores according to the child’s age. Inductive reasoning scores for 4–5 year olds were equivalent in the two cohorts for both mothers and fathers.

Consistent parenting

Both mothers and fathers reported high levels of consistent parenting at all ages of the K cohort, reporting on average that they “more than half the time” enforced their child’s behaviour consistently. There were minimal age differences for both mothers and fathers, although levels of consistent parenting did increase slightly with the age of the child.

Overprotective parenting

In the B cohort at age 0–1 years, mothers reported a mean of 2.5 out of 5 on the maternal separation anxiety scale, indicating that they slightly agreed with the items. At all other ages for both cohorts, both mothers and fathers reported that they “sometimes” or “always” behaved in an overprotective way toward their child. Fathers reported lower mean overprotection than mothers at all ages, and overprotection scores tended to reduce with the child’s age at ages 2–3 and older.

Parenting self-efficacy

In both cohorts, mothers and fathers reported high levels of parenting self-efficacy, reporting on average that they were “often” able to parent effectively. There were very slight tendencies for parents of 2–3 year old children to report lower levels of self-efficacy than parents of older children, and for mothers to report lower self-efficacy than fathers.

5.3 Sub-group analyses

This section examines differences in parenting outcomes by population subgroups. The population subgroups examined for mothers’ and fathers’ parenting are family socio-economic position and child gender. The population subgroups examined for mothers’ parenting outcomes only are family type (lone-mother and two-parent households),² mother’s age at the birth of the child, and mothers’ working hours (not working, part-time and full-time). (See Chapter 2 for details about these groups.)

To facilitate comparisons of parenting across children’s age groups, parenting measures were dichotomised. Parents in the least optimal 20% for their child’s age group and cohort for each measure were classified as having “poor” parenting practices relative to other parents. It is important to note that this definition is a relative (not an absolute) one - for the vast majority of parents, across most measures, reported parenting was not extremely poor.

² In these analyses, lone mother families and two-parent families are defined as described in Chapter 2 (lone-mother families have only one (female) parent present and two-parent families have two parents present). These parents are not necessarily the children’s biological parents, and include foster parents and families where a grandparent has taken on a parenting role; however, the percentage of children living with non-biological mothers/fathers is very small at all waves (see Chapter 3).

For each parenting outcome, univariate logistic regression analysis was used to assess whether parenting behaviours differed between population sub-groups. Logistic regression analyses produce odds ratios (OR), which compare whether the odds for an outcome (e.g., a poor parenting practice) is the same for two groups (e.g., boys versus girls). An odds ratio of one implies that the event is equally likely in both groups. An odds ratio greater than one indicates an increased likelihood (e.g., OR = 1.25 indicates 25% increased odds) relative to the comparison group, while an odds ratio of less than one indicates a decreased likelihood. Analyses were conducted at the bivariate level, without adjustment for other confounding factors that could potentially explain the relationships between the two measures. For example, in analyses looking at parenting differences by maternal employment, no adjustment was made for parental education, which may influence both the extent to which mothers are in the paid workforce and their parenting practices. Sample weights and adjustment for complex sampling design were applied to all analyses.

Tables 5.3–5.6 present subgroup analyses for each age group for the B and K cohorts. Tables 5.3 (B cohort; page 50) and 5.5 (K cohort; page 52) present the odds ratios and confidence intervals of mothers' parenting scores according to socio-economic position (SEP), child gender, family type, mother's age at the birth of the child and mother's working hours. Tables 5.4 (B cohort; page 51) and 5.6 (K cohort; page 53) present the odds ratios and confidence intervals of fathers' parenting scores according to SEP and child gender.

Socio-economic position

These analyses assessed whether the odds for poor parenting differed according to socio-economic position. The measure of socio-economic position distinguished the most disadvantaged 20% of the sample from the remaining 80%.

In the B cohort, mothers (Table 5.3) and fathers (Table 5.4) from disadvantaged families reported poorer parenting than other parents for the measures of inductive reasoning, overprotective parenting and parenting self-efficacy. The results were particularly strong for overprotective parenting, where disadvantaged mothers and fathers reported around twice the odds of overprotective parenting compared to more advantaged parents. Hostile parenting showed no associations with socio-economic position and parental warmth showed inconsistent relationships with socio-economic position.

Strong relationships between socio-economic position and parenting were also evident in the K cohort (Tables 5.5 and 5.6). Compared with other parents, disadvantaged parents had higher odds of poor parenting for every parenting measure for at least one age. Results were particularly strong for inconsistent parenting. Disadvantaged mothers reported over twice the odds of inconsistent parenting as more advantaged mothers at all ages, and disadvantaged fathers reported between 1.8 to 2.4 times the odds of inconsistent parenting as more advantaged fathers.

Child gender

These analyses assessed whether the odds for poor parenting differed according to child gender.

In the B cohort (Tables 5.3 and 5.4), there were significant differences in parenting practices according to child gender for parenting self-efficacy, parental warmth and overprotective parenting. Mothers of boys had 25% increased odds of poor self-efficacy than mothers of girls. Fathers of 4–5 year old boys also had 30% increased odds of low warmth compared with fathers of girls. Mothers and fathers of boys also tended to show reduced odds of overprotective parenting compared with those of girls.

More differences were evident in the K cohort (Tables 5.5 and 5.6). The odds of hostile parenting, for both mothers and fathers, were higher for parents of boys than for those of girls at all ages. Mothers and fathers of boys also felt less confident in their parenting skills than did parents of girls, with higher odds of poor self-efficacy at ages 6–7 and 8–9 years. Mothers and fathers of boys did, however, show higher use of inductive reasoning at some ages compared with parents of girls.

Fathers of boys in the K cohort reported less warmth than those of girls, showing higher odds of low parental warmth when their children were aged 6–7 and 8–9 years.

Table 5.3 Poor parenting outcomes, by population subgroups, B cohort mothers, Waves 1–3

	0–1 years		2–3 years		4–5 years	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Low parental warmth						
SEP most disadvantaged 20% ^a	0.83 (0.69–1.01)	0.060	1.24 (1.02–1.51)	0.030	1.00 (0.79–1.26)	0.990
Boy ^b	0.95 (0.82–1.10)	0.530	1.00 (0.86–1.17)	0.980	0.98 (0.82–1.16)	0.790
Lone mother ^c	0.94 (0.72–1.24)	0.665	1.15 (0.89–1.48)	0.296	0.72 (0.53–0.97)	0.033
Mother <25 years ^d	0.78 (0.62–0.98)	0.035	0.93 (0.75–1.15)	0.476	0.99 (0.77–1.27)	0.924
Mother's working hours: Full-time ^e	0.96 (0.73–1.27)	0.492	0.77 (0.58–1.01)	0.144	0.72 (0.54–0.95)	0.067
Mother's working hours: Part-time ^e	1.10 (0.93–1.30)		0.98 (0.83–1.17)		0.90 (0.74–1.09)	
Hostile parenting						
SEP most disadvantaged 20% ^a	1.11 (0.94–1.32)	0.210	1.08 (0.87–1.36)	0.480	1.14 (0.91–1.42)	0.240
Boy ^b	1.05 (0.89–1.23)	0.570	0.99 (0.83–1.19)	0.950	1.06 (0.91–1.25)	0.440
Lone mother ^c	1.04 (0.81–1.33)	0.782	1.17 (0.86–1.59)	0.309	1.18 (0.91–1.54)	0.210
Mother <25 years ^d	1.51 (1.25–1.84)	0.000	1.04 (0.77–1.39)	0.811	1.20 (0.91–1.60)	0.201
Mother's working hours: Full-time ^e	0.75 (0.56–1.00)	0.155	0.82 (0.60–1.13)	0.413	0.74 (0.57–0.97)	0.095
Mother's working hours: Part-time ^e	0.97 (0.82–1.15)		0.93 (0.77–1.12)		0.94 (0.78–1.13)	
Low inductive reasoning						
SEP most disadvantaged 20% ^a			1.77 (1.46–2.14)	0.000	1.35 (1.09–1.67)	0.010
Boy ^b			1.12 (0.96–1.29)	0.140	0.94 (0.79–1.11)	0.460
Lone mother ^c			1.26 (0.99–1.60)	0.062	1.01 (0.77–1.34)	0.919
Mother <25 years ^d			1.24 (1.00–1.55)	0.051	1.18 (0.89–1.57)	0.260
Mother's working hours: Full-time ^e			1.04 (0.82–1.33)	0.020	0.94 (0.72–1.23)	0.380
Mother's working hours: Part-time ^e			0.81 (0.68–0.97)		0.87 (0.72–1.06)	
Overprotective parenting						
SEP most disadvantaged 20% ^a	2.54 (2.14–3.00)	0.000	1.77 (1.44–2.19)	0.000	2.14 (1.80–2.54)	0.000
Boy ^b	0.98 (0.85–1.13)	0.771	0.85 (0.72–1.00)	0.050	0.82 (0.68–0.98)	0.030
Lone mother ^c	1.83 (1.43–2.35)	0.000	1.73 (1.30–2.30)	0.000	1.72 (1.29–2.28)	0.000
Mother <25 years ^d	1.76 (1.44–2.14)	0.000	1.61 (1.25–2.08)	0.000	2.33 (1.84–2.95)	0.000
Mother's working hours: Full-time ^e	0.26 (0.18–0.38)	0.000	0.58 (0.42–0.80)	0.000	0.85 (0.65–1.11)	0.000
Mother's working hours: Part-time ^e	0.35 (0.29–0.43)		0.71 (0.59–0.85)		0.65 (0.54–0.78)	
Low parenting self-efficacy						
SEP most disadvantaged 20% ^a			1.59 (1.25–2.02)	0.000	1.49 (1.19–1.85)	0.000
Boy ^b			1.25 (1.03–1.51)	0.020	1.24 (1.04–1.48)	0.020
Lone mother ^c			2.08 (1.57–2.76)	0.000	1.69 (1.33–2.14)	0.000
Mother <25 years ^d			1.17 (0.89–1.54)	0.250	1.51 (1.21–1.89)	0.000
Mother's working hours: Full-time ^e			0.97 (0.73–1.27)	0.889	0.83 (0.64–1.07)	0.029
Mother's working hours: Part-time ^e			0.95 (0.78–1.16)		0.76 (0.63–0.93)	

Notes: Parents with poor parenting outcomes are those in the least optimal 20% for their child's age group and cohort for each measure. Data collected in 2004 for 0–1 year olds; 2006 for 2–3 year olds; 2008 for 4–5 year olds. SEP = socio-economic position. OR = odds ratio. CI = confidence interval. ^a Compared with the more advantaged 80%. ^b Compared with girls. ^c Compared with mothers in two-parent households. ^d Compared with mothers aged 25+ years. ^e Compared with mothers not working.

Table 5.4 Poor parenting outcomes, by population subgroups, B cohort fathers, Waves 1–3

	0–1 years		2–3 years		4–5 years	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Low parental warmth						
SEP most disadvantaged 20% ^a	0.96 (0.73–1.26)	0.780	1.19 (0.91–1.55)	0.210	1.62 (1.20–2.20)	0.000
Boy ^b	0.94 (0.79–1.12)	0.510	1.16 (0.95–1.40)	0.140	1.31 (1.06–1.62)	0.010
Hostile parenting						
SEP most disadvantaged 20% ^a	0.97 (0.74–1.28)	0.860	1.17 (0.88–1.54)	0.280	0.98 (0.74–1.29)	0.870
Boy ^b	1.02 (0.86–1.21)	0.820	1.12 (0.95–1.34)	0.180	1.19 (0.98–1.45)	0.090
Low inductive reasoning						
SEP most disadvantaged 20% ^a			1.30 (0.98–1.74)	0.070	1.53 (1.13–2.06)	0.010
Boy ^b			1.05 (0.86–1.30)	0.610	0.88 (0.72–1.07)	0.190
Overprotective parenting						
SEP most disadvantaged 20% ^a			1.89 (1.46–2.45)	0.000	2.33 (1.80–3.00)	0.000
Boy ^b			0.95 (0.78–1.14)	0.570	0.82 (0.67–1.00)	0.050
Low parenting self-efficacy						
SEP most disadvantaged 20% ^a			1.33 (1.02–1.74)	0.040	1.16 (0.87–1.55)	0.320
Boy ^b			1.10 (0.91–1.32)	0.340	1.18 (0.97–1.44)	0.090

Notes: Parents with poor parenting outcomes are those in the least optimal 20% for their child's age group and cohort for each measure. Data collected in 2004 for 0–1 year olds; 2006 for 2–3 year olds; 2008 for 4–5 year olds. SEP = socio-economic position. OR = odds ratio. CI = confidence interval. ^a Compared with the more advantaged 80%. ^b Compared with girls.

Family type

These analyses assessed whether mother's odds for poor parenting differed according to family type. The measure of family type distinguished lone mothers from mothers in two-parent households.

There were strong relationships between family type and mothers' parenting in the B cohort (Table 5.3) for both overprotective parenting and parenting self-efficacy. Compared with mothers in two-parent households, lone mothers reported 83% increased odds of overprotective parenting when their children were aged 0–1 years. These odds reduced to around 70% increased odds when children were aged 2–3 and 4–5 years. Readers should note that differences in overprotective parenting in the B cohort between 0–1 years and the older ages may be due to the different measure used at the younger age. Lone mothers also had lower confidence in their parenting skills than mothers in two-parent households, with two-fold increased odds of poor self-efficacy at age 2–3 years, and 70% increased odds at age 4–5 years. However, lone mothers of 4–5 year olds reported more parental warmth than mothers of 4–5 year olds in two-parent households.

Similar results for overprotective parenting and parenting self-efficacy occurred in the K cohort (Table 5.5). Compared with mothers in two-parent households, lone mothers had 40–60% increased odds of overprotective parenting, and around 40% increased odds of poor self-efficacy at ages 6–7 and 8–9 years. Lone mothers in the K cohort were also more inconsistent and hostile in their parenting than mothers in two-parent households, with 40–100% increased odds of inconsistent parenting at all ages, and 37% increased odds of hostile parenting at age 8–9 years.

Mothers' age

These analyses assessed whether mother's odds for poor parenting differed according to mothers' age at the birth of the study child. The measure of mothers' age distinguished mothers aged under 25 years at the time of the child's birth from those aged 25 years and over.³

In the B cohort, young mothers tended to report poorer parenting than older mothers (Table 5.3). This was particularly true for overprotective parenting, where young mothers had increased odds of between 1.6 and 2.3 at all ages. Young mothers also had higher odds of hostile parenting at age 0–1 years, poorer use of inductive reasoning at age 2–3 years, and poorer parenting self-efficacy

³ This analysis was therefore restricted to biological mothers only.

Table 5.5 Poor parenting outcomes, by population subgroups, K cohort mothers, Waves 1–3

	4–5 years		6–7 years		8–9 years	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Low parental warmth						
SEP most disadvantaged 20% ^a	1.29 (1.08–1.53)	0.004	1.17 (0.96–1.44)	0.128	1.07 (0.86–1.35)	0.527
Boy ^b	1.11 (0.97–1.28)	0.127	0.93 (0.78–1.10)	0.408	1.02 (0.86–1.21)	0.796
Lone mother ^c	0.87 (0.69–1.11)	0.270	0.89 (0.70–1.13)	0.322	1.03 (0.78–1.35)	0.856
Mother <25 years ^d	0.81 (0.66–1.01)	0.056	0.92 (0.71–1.19)	0.522	1.15 (0.89–1.48)	0.275
Mother’s working hours: Full-time ^e	0.71 (0.56–0.89)	0.007	0.78 (0.62–0.98)	0.075	0.77 (0.60–0.98)	0.053
Mother’s working hours: Part-time ^e	0.84 (0.71–0.99)		0.84 (0.69–1.02)		0.81 (0.66–0.98)	
Hostile parenting						
SEP most disadvantaged 20% ^a	1.57 (1.35–1.84)	0.000	1.54 (1.29–1.85)	0.000	1.48 (1.19–1.83)	0.000
Boy ^b	1.29 (1.13–1.47)	0.000	1.48 (1.26–1.73)	0.000	1.37 (1.15–1.63)	0.000
Lone mother ^c	1.15 (0.93–1.42)	0.188	1.07 (0.86–1.34)	0.538	1.37 (1.06–1.76)	0.017
Mother <25 years ^d	1.43 (1.18–1.73)	0.000	1.36 (1.08–1.70)	0.008	1.34 (1.03–1.75)	0.027
Mother’s working hours: Full-time ^e	0.71 (0.58–0.88)	0.000	0.93 (0.75–1.14)	0.001	0.69 (0.54–0.88)	0.001
Mother’s working hours: Part-time ^e	0.75 (0.64–0.88)		0.70 (0.58–0.85)		0.67 (0.54–0.83)	
Low inductive reasoning						
SEP most disadvantaged 20% ^a	1.31 (1.10–1.57)	0.003	1.17 (0.95–1.43)	0.132	1.45 (1.17–1.79)	0.001
Boy ^b	1.02 (0.87–1.18)	0.836	0.83 (0.71–0.96)	0.016	0.73 (0.61–0.88)	0.001
Lone mother ^c	0.92 (0.75–1.14)	0.451	0.92 (0.72–1.16)	0.458	1.15 (0.88–1.50)	0.295
Mother <25 years ^d	1.00 (0.82–1.22)	0.985	0.96 (0.76–1.21)	0.724	0.8 (0.62–1.04)	0.101
Mother’s working hours: Full-time ^e	0.88 (0.70–1.11)	0.312	1.00 (0.79–1.26)	0.552	0.78 (0.59–1.03)	0.146
Mother’s working hours: Part-time ^e	0.89 (0.75–1.05)		0.92 (0.76–1.10)		0.98 (0.80–1.20)	
Overprotective parenting						
SEP most disadvantaged 20% ^a			1.86 (1.49–2.33)	0.000	1.86 (1.50–2.31)	0.000
Boy ^b			0.91 (0.74–1.10)	0.327	0.96 (0.81–1.13)	0.607
Lone mother ^c			1.48 (1.13–1.93)	0.004	1.63 (1.27–2.08)	0.000
Mother <25 years ^d			2.14 (1.67–2.74)	0.000	1.54 (1.19–1.99)	0.001
Mother’s working hours: Full-time ^e			0.55 (0.43–0.70)	0.000	0.68 (0.53–0.87)	0.001
Mother’s working hours: Part-time ^e			0.53 (0.44–0.65)		0.68 (0.55–0.84)	
Inconsistent parenting						
SEP most disadvantaged 20% ^a	2.41 (2.03–2.87)	0.000	2.57 (2.16–3.06)	0.000	2.22 (1.84–2.70)	0.000
Boy ^b	0.94 (0.81–1.10)	0.440	0.92 (0.80–1.07)	0.286	1.02 (0.86–1.21)	0.784
Lone mother ^c	1.64 (1.34–2.00)	0.000	1.46 (1.16–1.83)	0.001	2.00 (1.60–2.50)	0.000
Mother <25 years ^d	1.48 (1.23–1.79)	0.000	1.40 (1.15–1.71)	0.001	1.37 (1.06–1.78)	0.017
Mother’s working hours: Full-time ^e	0.61 (0.48–0.77)	0.000	0.75 (0.59–0.95)	0.000	0.79 (0.60–1.02)	0.000
Mother’s working hours: Part-time ^e	0.52 (0.45–0.61)		0.65 (0.54–0.79)		0.65 (0.52–0.80)	
Low parenting self-efficacy						
SEP most disadvantaged 20% ^a			1.36 (1.10–1.69)	0.006	1.43 (1.16–1.76)	0.001
Boy ^b			1.58 (1.31–1.91)	0.000	1.60 (1.34–1.90)	0.000
Lone mother ^c			1.40 (1.08–1.82)	0.011	1.40 (1.08–1.80)	0.010
Mother <25 years ^d			1.17 (0.87–1.58)	0.283	1.44 (1.12–1.86)	0.005
Mother’s working hours: Full-time ^e			0.87 (0.68–1.12)	0.043	0.72 (0.57–0.92)	0.000
Mother’s working hours: Part-time ^e			0.77 (0.62–0.94)		0.64 (0.52–0.79)	

Notes: Parents with poor parenting outcomes are those in the least optimal 20% for their child's age group and cohort for each measure. Data collected in 2004 for 4–5 year olds; 2006 for 6–7 year olds; 2008 for 8–9 year olds. SEP = socio-economic position. OR = odds ratio. CI = confidence interval. ^a Compared with the more advantaged 80%. ^b Compared with girls. ^c Compared with mothers in two-parent households. ^d Compared with mothers aged 25+ years. ^e Compared with mothers not working.

when their children were aged 4–5 years. However, young mothers reported higher levels of parental warmth at 0–1 years than older mothers.

Young mothers also had increased odds of overprotective parenting in the K cohort, relative to older mothers (Table 5.5). When their children were aged 6–7 and 8–9 years, young mothers had 50–115% increased odds of overprotective parenting than their older counterparts. Relative to older mothers, young mothers in this cohort also had 30–50% increased odds of hostile parenting at all ages, 30–50% increased odds of inconsistent parenting all ages, and 44% increased odds of poor self-efficacy at age 8–9 years. There was no strong evidence for a relationship between mothers' age and parental warmth or inductive reasoning in the K cohort in any of the three age groups.

Mother's working hours

These analyses assessed whether mother's odds for poor parenting differed according to mother's working hours. The measure of mothers' working hours distinguished mothers who were not working (unemployed, not in the labour force or on maternity leave) from those working part-time (less than 35 hours per week) and full-time (35 or more hours per week).

The data suggest few differences in parental warmth and hostility according to mother's working hours in the B cohort (Table 5.3), but reduced odds of low warmth and high hostility for those working full-time at age 4–5 years. Compared with not-working mothers, overprotective parenting was markedly lower among full-time working mothers at 0–1 and 2–3 years, and among part-time working mothers at all ages. Part-time working mothers also had higher parenting self-efficacy when their children were aged 4–5 years. Mothers of 2–3 year olds who were not working or working full-time also reported poorer use of inductive reasoning than did those working part-time.

Employment was also mostly associated with reduced odds for poor parenting in the K cohort (Table 5.5), for every parenting outcome except inductive reasoning. Compared with not-working mothers, part- and full-time working mothers had reduced odds of hostile parenting, overprotective parenting, inconsistent parenting and poor self-efficacy at almost all ages. However, there was also some evidence at most ages of reduced parental warmth among part- and full-time working mothers, relative to not-working mothers.

Table 5.6 Poor parenting outcomes, by population subgroups, K cohort fathers, Waves 1–3

	4–5 years		6–7 years		8–9 years	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Low parental warmth						
SEP most disadvantaged 20% ^a	1.27 (0.99–1.62)	0.057	1.46 (1.10–1.93)	0.009	1.29 (1.00–1.68)	0.053
Boy ^b	1.04 (0.88–1.24)	0.623	1.31 (1.09–1.58)	0.004	1.28 (1.03–1.59)	0.026
Hostile parenting						
SEP most disadvantaged 20% ^a	1.15 (0.90–1.45)	0.257	1.12 (0.85–1.48)	0.409	1.32 (0.98–1.78)	0.066
Boy ^b	1.32 (1.10–1.58)	0.002	1.27 (1.05–1.53)	0.014	1.56 (1.27–1.90)	0.000
Low inductive reasoning						
SEP most disadvantaged 20% ^a	1.35 (1.05–1.74)	0.018	1.15 (0.86–1.54)	0.332	1.25 (0.93–1.67)	0.135
Boy ^b	0.94 (0.78–1.13)	0.495	0.91 (0.76–1.09)	0.290	0.75 (0.61–0.93)	0.008
Inconsistent parenting						
SEP most disadvantaged 20% ^a	2.42 (1.93–3.03)	0.000	1.84 (1.42–2.38)	0.000	2.21 (1.68–2.89)	0.000
Boy ^b	0.89 (0.75–1.06)	0.191	0.85 (0.70–1.04)	0.108	0.91 (0.74–1.11)	0.346
Overprotective parenting						
SEP most disadvantaged 20% ^a			1.66 (1.26–2.19)	0.000	1.56 (1.15–2.11)	0.004
Boy ^b			0.84 (0.69–1.02)	0.084	0.80 (0.65–0.98)	0.034
Low parenting self-efficacy						
SEP most disadvantaged 20% ^a			1.60 (1.23–2.08)	0.000	1.59 (1.21–2.09)	0.001
Boy ^b			1.32 (1.07–1.62)	0.009	1.72 (1.39–2.13)	0.000

Notes: Parents with poor parenting outcomes are those in the least optimal 20% for their child's age group and cohort for each measure. Data collected in 2004 for 4–5 year olds; 2006 for 6–7 year olds; 2008 for 8–9 year olds. SEP = socio-economic position. OR = odds ratio. CI = confidence interval. ^a Compared with the more advantaged 80%. ^b Compared with girls.

5.4 Summary

Descriptive statistics are presented in Tables 5.1 and 5.2 for each child age group, for the B and K cohorts respectively. Overall, parents reported high levels of warmth and low levels of hostility toward their children, with few differences according to child age or cohort except for a slight peak in parental hostility when children were aged 2–3 and 4–5 years. Inductive reasoning and overprotective parenting appeared lower for fathers than mothers at all ages and for both cohorts. There were minimal differences in inconsistent parenting and parenting self-efficacy according to child age or cohort for both mothers and fathers.

In the sub-group analyses, socio-economic position showed strong relationships with parenting outcomes in both cohorts, with disadvantaged parents reporting poorer parenting practices than more advantaged parents on almost all measures. These effects were particularly strong for overprotective parenting in the B cohort, and inconsistent parenting in the K cohort. Parents of boys tended to be less confident in their parenting abilities than parents of girls, and were more hostile in the K cohort. Mothers' part- and full-time work was generally associated with lower odds for poor maternal parenting.

There was substantial similarity in the parenting behaviours of lone mothers and young mothers, which may reflect an overlapping sample in these two groups. Compared with mothers in two-parent households and older mothers, lone mothers and young mothers reported increased odds of overprotective parenting and poor self-efficacy in the B cohort. These patterns were also evident in the K cohort; however, in this cohort, lone mothers and young mothers also reported more inconsistent and more hostile parenting compared to their two-parent and older counterparts. This pattern suggests that poor practices are common in one or two specific dimensions of parenting at younger child ages but may diversify to include other dimensions at older ages.

Overall, the majority of parents of study children demonstrated competent parenting. Even among those who were classified as “poor”, very few were extremely dysfunctional in their parenting practices. It was also notable that there were more similarities than differences between the parenting behaviours of fathers and mothers. The social patterning of parenting has been reported on numerous occasions (e.g., Centre for Community Child Health, 2004; Fergusson, Horwood, Shannon, & Lawton, 1989), but these data illustrate very clearly that social disadvantage is consistently associated with increased risks for poor parenting across multiple parenting dimensions. Undoubtedly, these patterns of family interaction contribute to the marked inequalities observed in the physical and developmental health of disadvantaged children (Nicholson, Lucas, Berthelsen, & Wake, 2010; Wake, Hardy, Canterford, Sawyer, & Carlin, 2007).

There are a number of limitations in these analyses that need to be considered. The analyses were conducted at the bivariate level, with no adjustment for potential confounders. This means that alternative explanations for the results cannot be eliminated, and that the results do not provide conclusive evidence of parenting patterns. Gathering such evidence would require a more sophisticated, multivariate investigation. A second limitation is that the overlapping nature of the subgroups was not considered. For example, younger parents are likely to have lower levels of education and income (key components of the socio-economic position measure), and lone mothers are likely to be younger and have less family income than mothers in two-parent households. Similarities between subgroups should therefore be interpreted with caution. A final limitation is that the data represent a series of cross-sectional snapshots of parenting, and the continuities and discontinuities of particular parenting practices over time are not considered.

Nonetheless, this chapter presents a unique picture of contemporary parenting practices and parenting behaviours for a representative sample of Australian parents of young children.

5.5 Further reading

Alexander, M., & Baxter, J. (2005). Impacts of work on family life among partnered parents of young children. *Family Matters*, 72, 18–25.

Baxter, J. (2007). When dad works long hours: How work hours are associated with fathering 4–5-year-old children. *Family Matters*, 77, 60–69.

Fletcher, R., Fairbairn, H., & Pascoe, S. (2004). *Fatherhood research in Australia: Research report*. Calligan, NSW: Family Action Centre, University of Newcastle.

- Qu, L., Soriano, G., & Weston, R. (2006). Starting early, starting late: Socio-demographic characteristics and parenting of new mothers of different ages. *Family Matters*, 73, 52–59.
- Wake, M., Nicholson J. M., Hardy P., & Smith, K. (2007). Preschooler obesity and parenting styles of mothers and fathers: National population study. *Pediatrics*, 120(6), 1520–1527.
- Zubrick, S., Smith, G. J., Nicholson, J., Sanson, A., & Jackiewicz, T. (2008). *Parenting and families in Australia* (Social Policy Research Paper No. 34). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

5.6 References

- Baumrind, D. (1973). The development of instrumental competence through socialization. In D. A. Pick (Ed.), *Minnesota Symposium on Child Psychology* (pp. 3–46). Minneapolis, MN: University of Minnesota Press.
- Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2009). Early aetiology of internalising difficulties: A longitudinal community study. *International Journal of Mental Health Promotion*, 11(1), 22–32.
- Centre for Community Child Health. (2004). *Parenting Information Project: Vol. 2. Literature review*. Canberra: Department of Family and Community Services.
- Fergusson, D. M., Horwood, L. J., Shannon, F. T., & Lawton, J. M. (1989). The Christchurch Child Development Study: A review of epidemiological findings. *Paediatric and Perinatal Epidemiology*, 3, 302–325.
- Nicholson, J. M., Lucas, N., Berthelsen, D., & Wake, M. (2010). Inequalities in the physical health, socio-emotional wellbeing and language and literacy skills of Australian children at ages 0–1, 2–3, 4–5 and 6–7 years. *Journal of Epidemiology and Community Health*. Advance online publication. doi:10.1136/jech.2009.103291
- Osofsky, J. D., & Thompson, M. D. (2000). Adaptive and maladaptive parenting: Perspectives on risk and protective factors. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention*. Cambridge, Cambridge University Press.
- Patterson, G. R. (1982). *A social learning approach: Vol. 3. Coercive family process*. Eugene, OR: Castalia Publishing.
- Patterson, G. R., De Baryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behaviour. *American Psychologist*, 44, 329–335.
- Pettit, G. S., & Bates, J. E. (1989). Family interaction patterns and children's behaviour problems from infancy to 4 years. *Developmental Psychology*, 25, 413–420.
- Rapee, R. M., Schniering, C. A., & Hudson, J. L. (2009). Anxiety disorders during childhood and adolescence: Origins and treatment. *Annual Review of Clinical Psychology*, 5, 311–41.
- Rothbaum, F., & Weisz, J. R. (1994). Parental caregiving and child externalizing behaviour in nonclinical samples: A meta-analysis. *Psychological Bulletin*, 116, 55–74.
- Sanders, M. R., Gooley, S., & Nicholson, J. (2000). Early intervention in conduct problems in children. In R. Kosky, A. O'Hanlon, G. Martin, & C. Davis (Eds.), *Clinical approaches to early intervention in child and adolescent mental health: Vol. 3*. Adelaide: Australian Early Intervention Network for Mental Health in Young People.
- Sanders, M. R., Markie-Dadds, C., Rinaldis, M., Firman, D., & Baig, N. (2007). Using household survey data to inform policy decisions regarding the delivery of evidence-based parenting interventions. *Child Care, Health and Development*, 33(6), 768–783.
- Silburn, S. R., Zubrick, S. R., Garton, A., Gurrin, L., Burton, P., Dalby, R. et al. (1996). *Western Australia Child Health Survey: Family and community health*. Perth: Australian Bureau of Statistics and TVW Telethon Institute for Child Health Research.
- Wake, M., Hardy, P., Canterford, L., Sawyer, M., & Carlin J. B. (2007). Overweight, obesity and girth of Australian preschoolers: Prevalence and socioeconomic correlates. *International Journal of Obesity*, 31(7), 1044–1051.

Children's experiences of child care

6

Linda J. Harrison

Charles Sturt University

Child care for very young children is an increasingly common experience in Australia, but the ways in which care is arranged are remarkably diverse. Children's experiences of child care are affected by the array of socio-demographic and cultural factors that differentiate Australian families, including whether or not parents decide to use child care; what type or types of care are used and for how many hours each week; and when care is started or stopped. Care experiences are also affected by government policy and funding decisions that determine the availability, cost and quality of some types of care.

Child care is often the first step in the child's journey toward a more diverse social world, which expands through relationships with caregivers, friendships with other children, and encounters with the wider community. The experiences children gain in child care are therefore an important influence on their development (Bowes, Harrison, Sweller, Taylor, & Neilsen-Hewitt, 2009; Love et al., 2003; National Institute for Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2000, 2003, 2005). Additionally, child care can influence family wellbeing, not only by enabling parents to participate in the workforce but also by providing social and parenting support, exposure to alternative models of caregiving, and new ways of understanding the child.

In order to appreciate the role that child care plays for families and children, it is critical that these experiences and how they vary by family circumstances are fully understood. This chapter draws on data collected from the B cohort at Waves 1 and 2¹ to describe patterns of child care experienced by 0–1 year olds and 2–3 year olds, and the associations between care and diverse family circumstances.² The following questions are addressed:

- At what age do young children typically experience non-parental child care?
- What types of child care arrangements do they experience, and how do these change with age?
- How much time is spent in care each week, and in how many different settings?
- Why do parents use or not use non-parental child care?
- How do children's experiences of care differ in relation to different family circumstances?
- By addressing these questions, families' use of child care in LSAC can then be collated and compared over the child's first years of life, enabling researchers to look at the influence of different patterns of child care experience on developmental outcomes.

6.1 Definitions

This chapter defines child care as non-parental care that involves the use, on a regular basis, of formal or informal care provided by people other than the child's parent(s). Thus, it excludes casual or occasional babysitting (but includes regular babysitting arrangements). The question asked of families in *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)*

¹ This chapter does not include data from Wave 3, when the children were aged 4–5 years, because by that time the majority of parents reported that children were attending a structured pre-school program or had started school, and that child care was an additional, rather than their main, arrangement.

² Percentages reported throughout this chapter are based on weighted data.

has been: “Over the past 1 month has [child’s name] been looked after at regular times during the week by anyone other than you (or [partner’s name])?” The parent is defined as either the mother and/or father with whom the child generally lives, as well as any parent living elsewhere who has ongoing contact with the study child.

Non-parental child care arrangements are categorised as formal or informal. Formal care refers to government-regulated long day care centres and family day care homes. Informal care refers to care by relatives (grandparents and other relatives) and non-relatives (a nanny or other person such as a paid babysitter, friend or neighbour), as well as “drop-in” care provided by occasional child care centres³ and unlicensed providers, such as shopping centres, fitness and leisure centres, community centres, and church groups, where the parent is expected to be on the premises. For each current care arrangement, up to a maximum of three, parents were asked to identify the number of days and hours the child attended each week, and the number of months for which the child had been attending the care setting. The total number of different arrangements received each week was also recorded.

Wave 1 and Wave 2 data were used to construct a summary of each child’s child care arrangements at age 0–1 years and at age 2–3 years. Eight care patterns were formed:

- children who attended one type of child care:⁴
 - long day care (LDC);
 - family day care (FDC);
 - drop-in centre care;
 - care provided by a relative;
 - care with a non-relative;
- children who attended a mix of different types of care:
 - mixed formal care (LDC and FDC);
 - mix of informal care (drop-in and/or relative and/or non-relative); and
 - mix of formal (LDC or FDC) and informal care (drop-in or relative or non-relative).

These categories capture the variety and complexity of individual patterns of care, and allow examination of the relationships between children’s experiences of child care and family characteristics.

6.2 How many 0–1 year olds and 2–3 year olds received child care? Why was care used or why not?

At Wave 1, 34.9% of the 5,107 0–1 year olds were receiving regular non-parental child care. Two years later, this had increased to 68.4% of the 4,606 children who participated at Wave 2.

Parents who were using regular non-parental child care were asked to give the main reason they were using care. The majority said care was needed to enable the parent to meet their work or study commitments (25.2% of the sample in Wave 1; 40.0% in Wave 2). A sizable proportion cited reasons that were for other parental needs, such as sport, shopping, taking a break or time alone (6.6% in Wave 1; 9.1% in Wave 2). Parents also reported using care for the child’s benefit (1.7% in Wave 1; 18.4% in Wave 2); that is, for social development/interaction with other children (1.0% in Wave 1; 16.7% in Wave 2), intellectual development (0.0% in Wave 1; 0.9% in Wave 2) or to establish relationships with relatives (0.7% in Wave 1; 0.8% in Wave 2).

Parents who were not using child care were also asked to give a reason for this. Most said that their child did not need it, or that a parent was available to provide care (56.5% of the sample in Wave 1; 26.1% in Wave 2); however, a number of parents gave reasons that related to the unavailability of suitable care. For example, 2.5% of parents of 0–1 year olds and 2.3% of parents of 2–3 year olds

3 Some occasional care centres are licensed by the State/Territory Government, and are subject to government regulations. In this study, however, it was not possible to ascertain the distinction between licensed occasional care centres and unlicensed gym/leisure centres. For this reason, all forms of occasional care were classified as “informal”.

4 Note that “one type of care” includes cases where the child attends more than one *provider* of these care types per week; for example, two different long day care centres or two different relatives.

said that they could not find care or meet the cost of care; and 1.9% of parents of 0–1 year olds and 1.3% of parents of 2–3 year olds expressed concerns about the quality of care or having their child cared for by strangers.

6.3 Type(s) of child care experienced by 0–1 year olds and 2–3 year olds

International research into the effects of child care has tended to compare child outcomes in relation to two broad types of settings: centre-based care and home-based care. Researchers in the US (Loeb, Fuller, Kagan, & Carroll, 2004; NICHD ECCRN, 2000) and Canada (Kohen, Hertzmann, & Willms, 2002) have reported positive associations between attendance at centre-based child care and subsequent cognitive and language development. Australian studies, on the other hand, have reported positive outcomes for all formal care settings: family day care as well as centre-based care (Harrison & Ungerer, 2000; Love et al., 2003). In the following analyses, “type of care” describes the full range of care types, including formal and informal home-based care (FDC, relatives, non-relatives), formal and informal centre-based care (LDC and drop-in care), and mixed types of care.

Patterns of child care experienced by the B cohort as 0–1 year olds and as 2–3 year olds are summarised in Table 6.1. Infants (Wave 1) were typically cared for in one type of care, with the most common being informal home-based care with a relative (15.6%). The next most common type was formal, government-regulated care, which was attended by 10.4% of 0–1 year olds (LDC = 7.8%; FDC = 2.6%). A small proportion of LSAC 0–1 year olds (5.1%) attended a mix of care types, most of whom received a combination of formal and informal care (3.5%).

The pattern of care was markedly different two years later (Wave 2). Not only had more children entered care (68.4% vs 34.9% at Wave 1), but the type(s) of care used were different. The number of children attending formal, government-regulated care had increased nearly four-fold (from 10.4% to 40.4%), with long day care (34.4%) becoming the most commonly used type of care. Home-based care with relatives was still a popular arrangement, but fewer children were in relative-only care (8.1% vs 15.6% at Wave 1) and more were receiving relative care in combination with LDC or FDC (13.1% in mixed formal and informal care vs 3.5% at Wave 1). The total proportion of children receiving a mix of care types had increased to 15.2%.

Table 6.1 Type of child care received (0–1 year olds and 2–3 year olds), B cohort, Waves 1 and 2

Type of care	Wave 1		Wave 2	
	No. of observations	%	No. of observations	%
Exclusive parental care	3,287	65.1	1,375	31.6
One care type				
Long day care only	402	7.8	1,597	34.4
Family day care only	140	2.6	278	6.0
Informal drop-in care only	62	1.2	157	3.0
Relative care only	791	15.6	371	8.1
Non-relative care only	146	2.7	88	1.7
Total	1,541	29.9	2,491	53.2
Mix of care types				
Mixed formal care	11	0.3	31	0.6
Mixed informal care	73	1.3	74	1.5
Mixed formal and informal care	195	3.5	635	13.1
Total	279	5.1	740	15.2
Total attending any care type	1,820	34.9	3,231	68.4
Total no. of observations	5,107	100.0	4,606	100.0

Note: Percentages may not total 100% due to rounding.

6.4 Quantity of child care experienced by 0–1 year olds and 2–3 year olds

Quantity of care refers to the number of hours of care received each week. Longitudinal studies conducted in the US and UK have shown a consistent association between longer hours of child care and poorer behavioural outcomes (NICHD ECCRN, 2003, 2005; Sylva et al., 2003). Australian research has shown a wider range of negative associations between quantity of care in the early years and children's development, particularly for very long hours (more than 30 hours a week) of weekly care. These negative associations occur in terms of later academic/learning capabilities (Bowes et al., 2009; Harrison et al., 2009; Love et al., 2003); social competence (Bowes et al., 2009); and, in association with centre-based care, infant health (Harrison et al., 2009).

On average, 0–1 year olds received part-time hours of child care (mean = 17.3 hours/week), but the quantity of care varied by type of care received (as shown in Table 6.2). Infants who attended government-regulated care had the most hours per week, with means of 20.4 for LDC, 21.6 for FDC, and 23.8 and 24.4 for mixed care arrangements that included formal settings. Infants who were cared for by relatives received fewer hours per week (mean = 14.0), whether this was with relatives only or in mixed informal care arrangements. Quantity of care provided by non-relatives was mid-way between formal and relative care (mean = 19.4 hours/week). Infants attending drop-in care attended child care for the fewest hours (mean = 4.2 hours/week).

A somewhat different pattern was seen two years later (Wave 2). On average, the amount of care experienced by 2–3 year olds (mean = 20.5 hours/week) was greater than for 0–1 year olds. The longest hours were still received by children attending mixed care that included formal settings, with means of 27.1 and 28.1 hours/week. Hours in FDC (mean = 21.9) were basically the same as in Wave 1, but on average LDC was attended for fewer hours per week (mean = 18.5) than in Wave 1. LDC hours were now similar in quantity to the hours children received in non-relative care (mean = 18.6) or mixed informal care (mean = 18.4). Care provided by relatives had increased slightly from Wave 1 (mean = 15.6). Drop-in care remained the lowest at mean = 5.1.

Table 6.2 Type of child care, by weekly hours (quantity) of care (for children receiving care), B cohort, Waves 1 and 2

	Wave 1 Hours/week		Wave 2 Hours/week	
	Mean	SD	Mean	SD
Long day care only	20.4	12.8	18.5	11.8
Family day care only	21.6	13.2	21.9	12.6
Informal drop-in care only	4.2	4.9	5.1	4.8
Relative care only	14.0	13.2	15.6	14.0
Non-relative care only	19.4	17.1	18.6	16.6
Mixed formal care	23.8	10.9	27.1	10.1
Mixed informal care	14.0	11.9	18.4	13.8
Mixed formal and informal care	24.4	10.8	28.1	13.9
No. of observations	1,820		3,231	

6.5 Multiplicity of child care experienced by 0–1 year olds and 2–3 year olds

Multiplicity refers to the number of care settings attended each week or, in the case of informal care, the number of caregivers who look after the child each week. Research studies that have assessed the impact of multiple care arrangements on children's development tend to report negative effects as the number of care arrangements increases. For example, children attending multiple child care arrangements were rated as being less pro-social with peers, having more conflicted relationships with their teachers (Bowes et al., 2009), and showing more problem behaviours (Harrison et al.,

2009). The negative effects of multiple care arrangements tend to increase over time. Love et al. (2003) noted that Australian children who had had more changes in their care arrangements from birth to age 6 were rated by their teachers as less well adjusted (i.e., showed more behaviour problems) at school.

On average, the proportions of the children attending one, two and three or more child care arrangements each week were similar at Wave 1 and Wave 2. Of the children receiving regular child care:

- 76.8% of 0–1 year olds and 74.5% of 2–3 year olds attended one care arrangement each week;
- 20.6% of 0–1 year olds and 21.8% of 2–3 year olds attended two care arrangements; and
- 2.6% of 0–1 year olds and 3.7% of 2–3 year olds attended three or more arrangements.

The number of weekly care arrangements was further examined by type of care. Figures presented in Table 6.3 show that children receiving informal care were more likely to have a mix of carers or care settings than children attending formal care settings. In Wave 1, 14.9% of 0–1 year olds receiving care by relatives and 10.8% of children receiving care by non-relatives attended more than one care arrangement each week. In contrast, only 2.4% of children attending LDC and 4.5% attending FDC attended multiple settings. In Wave 2, 15.3% receiving care by relatives and 10.6% receiving non-relative care attended multiple care arrangements compared to 1.3% of children in LDC and 5.0% of children in FDC. The association between multiple care and informal care was also suggested in the “Mixed formal and informal care” group, which had a significant proportion of 0–1 year olds (11.6%) and 2–3 year olds (16.5%) receiving three or more care arrangements each week.

Table 6.3 Type of child care, by number of weekly care arrangements (for children receiving care), B cohort, Waves 1 and 2

	Wave 1					Wave 2				
	No. of weekly care arrangements			Total	No. of obsns	No. of weekly care arrangements			Total	No. of obsns
	1	2	3+			1	2	3+		
	%					%				
Long day care only	97.6	1.1	1.3	100.0	402	98.7	1.3	–	100.0	1,597
Family day care only	95.5	3.8	0.7	100.0	140	95.0	4.8	0.2	100.0	278
Informal drop-in care only	91.0	8.3	0.7	100.0	62	96.4	3.6	–	100.0	157
Relative care only	85.1	13.9	1.0	100.0	791	84.7	14.5	0.8	100.0	371
Non-relative care only	89.2	8.4	2.4	100.0	146	89.4	10.6	–	100.0	88
Mixed formal care	–	100.0	–	100.0	11	–	94.8	5.2	100.0	31
Mixed informal care	–	87.8	12.2	100.0	73	–	80.9	19.1	100.0	74
Mixed formal and informal care	–	88.4	11.6	100.0	195	–	83.5	16.5	100.0	635

6.6 Types of child care experienced by 0–1 year olds and 2–3 year olds in different family circumstances

Recent research into the impact of child care on child development aims to take account of possible moderating factors; that is, the characteristics of the child, family or community that may be associated with developmental outcomes and also with the types and amounts of child care that are used. In essence, the model is one in which child, family, and child care factors interact or aggregate to influence development. In this section, information is provided about the relationships between child care and key characteristics of the family and household environment using the subpopulation groups introduced in Chapter 2:

- family socio-economic position;
- mothers' hours of work;
- geographic location;

- cultural background (language spoken at home); and
- number of siblings in the household.

These descriptors were chosen as factors distinguishing family and community resources, and family preferences that were likely to determine not only whether child care was used, but also the type of care that could be accessed or afforded. These subpopulation groups are examined in relation to two aspects of the child's child care experience: the type(s) of child care attended at Wave 1 and Wave 2 (based on the eight care patterns described earlier in this chapter) and the amount of care received each week. In keeping with the child care groupings used in previous studies (Bowes et al., 2009; NICHD ECCRN, 2005) and reports using data from the study (Harrison et al., 2009), quantity of care was computed for weekly hours of centre-based care (LDC) and weekly hours of home-based care (FDC/relative/non-relative).⁵

Socio-economic position

Family socio-economic position (SEP) was summarised into three groups based on quartiles:

- high SEP: top 25% of families;
- middle SEP: middle 50%; and
- low SEP: bottom 25%.

The figures in Table 6.4 present the percentage of children in each of eight types of child care for three levels of family SEP, for Wave 1 (0–1 year olds) and Wave 2 (2–3 year olds). The results suggest that although child care use was greater in families that had a higher SEP (as shown by the lower proportions of children receiving exclusive parental care), on average, children growing up in different socio-economic circumstances were more similar than different in terms of their experience of child care. For each level of SEP, the eight types of child care were used by relatively similar proportions of children. All SEP groups were represented across the eight different types of care and, in many cases, in an equivalent proportion. For example, there were similar percentages

Table 6.4 Type and quantity of child care received, by family socio-economic position (for all children), B cohort, Waves 1 and 2

	Wave 1 SEP			Wave 2 SEP		
	Low	Middle	High	Low	Middle	High
Type of care	%			%		
Exclusive parental care	76.4	63.7	53.5	42.3	28.9	21.5
Long day care only	4.9	7.6	11.9	32.3	35.5	35.4
Family day care only	1.5	3.2	2.8	6.0	6.9	4.0
Informal drop-in care only	0.6	1.3	1.6	1.6	3.0	5.0
Relative care only	13.0	16.2	17.4	7.6	8.0	9.2
Non-relative care only	1.2	2.2	5.6	0.8	1.3	3.9
Mixed formal care	0.3	0.3	0.1	0.3	0.8	0.5
Mixed informal care	0.5	1.4	2.2	0.8	1.5	2.5
Mixed formal and informal care	1.7	4.0	4.8	8.2	14.1	17.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	1,273	2,546	1,273	1,150	2,302	1,150
Quantity of care	Mean			Mean		
Hours/week in LDC	16.3	18.6	19.8	16.7	17.7	18.9
No. of observations	83	271	207	478	1,127	606
Hours/week in FDC/home care	11.7 ^{a, b}	16.1 ^a	16.0 ^b	15.8	16.4	17.1
No. of observations	237	699	413	274	741	420

Notes: The "a–a" and "b–b" superscript pairs denote significant differences between means within SEP group comparisons, as determined by the non-overlap of their respective 95% confidence intervals. The "a–a" superscript pair shows that in Wave 1, the mean hours for the Low SEP group are significantly different from mean hours for the Middle SEP group. The "b–b" superscript pair shows that mean hours for the low SEP group are significantly different from mean hours for the high SEP group. Percentages may not total 100% due to rounding.

⁵ Note that these categories are not mutually exclusive; some children attended both types of care.

of 2–3 year olds attending LDC (low SEP = 32.3%, middle SEP = 35.5%, high SEP = 35.4%) and receiving care from relatives (low SEP = 7.6%, middle SEP = 8.0%, high SEP = 9.2%).

Where differences between groups were apparent, these were associated with the age of the child and high SEP families' greater needs for extended or more flexible hours of care. For example, unlike the 2–3 year olds, the proportion of 0–1 year olds attending LDC was significantly higher in the high SEP group (11.9%) than the low SEP group (4.9%). Types of care that were associated with longer weekly hours of care (mixed formal and informal care) were used by twice as many high SEP families as low SEP families: high SEP = 4.8% vs low SEP = 1.7% at Wave 1; high SEP = 17.9% vs low SEP = 8.2% at Wave 2. Similarly, care that offers more flexible hours (i.e., paid care with a nanny or other non-relative), at a cost, tended to be used by a greater number of high SEP families than low SEP families: 5.6% vs 1.2% at Wave 1 and 3.9% vs 0.8% at Wave 2.

Quantity of care for each of the three SEP levels is also presented in Table 6.4 as the mean number of hours per week in LDC and in home-based care. Where there were significant differences between mean values, these are noted by the superscript pairs "a–a" or "b–b", with the criterion for significance being the non-overlap of their respective 95% confidence intervals. Figures show that hours of care per week were similar for each of the three levels of SEP. A significant difference was noted only for the use of home-based care for 0–1 year olds, where low SEP families used less care than middle and high SEP families (see table note).

Mothers' hours of work

The percentage of children in each type of child care arrangement for three categories of mothers' work hours (full-time: 35 or more hours per week; part-time: less than 35 hours per week; not currently working) are presented in Table 6.5. Not unexpectedly, given the reasons why parents used child care, there was a strong association between mothers' hours of work and the use of child care. This was particularly evident in Wave 1, where for every type of care category apart from informal drop-in care the proportion of 0–1 year olds whose mothers worked full-time or part-time was significantly higher than the proportion of 0–1 year olds whose mothers were not currently working. The same pattern was seen two years later, albeit to a lesser degree for long day care services only, which were used by similar proportions of working and non-working mothers: full-time = 38.7%, part-time = 38.6%, not currently working = 30.6%.

In general, formal or government-regulated care was the main form of care used by mothers who worked full-time, being the experience of 39.9% of 0–1 year olds and 74.3% of 2–3 year olds (combining long day care, family day care, mixed formal care, and mixed formal and informal care). In comparison, mothers working part-time were somewhat less reliant on formal care settings, which were attended by 26.9% of 0–1 year olds and 66.1% of 2–3 year olds. In contrast, care from relatives (only) was accessed by a similar proportion of full-time and part-time employed mothers of 0–1 year olds (24.4% and 27.6%) and 2–3 year olds (12.6% and 11.0%).

Figures presented in Table 6.5 (page 64) also point to the sizable proportion of employed mothers who did not access non-parental child care. This was particularly evident when children were 0–1 year olds (Wave 1: 24.2% full-time, 36.6% part-time), but was also noted for some families in Wave 2: 7.9% full-time; 15.1% part-time. These families were able, or chose, to manage by using parent-only care (Gray, Baxter, & Alexander, 2008).

Of further note are the figures for the group of mothers who were not currently working but who used regular child care. At Wave 1, 17.7% of non-working mothers used care, most of which was with relatives (9.3%) or LDC (3.7%). By Wave 2, however, the proportion of non-working mothers using child care had increased threefold (51.4%), with the vast majority using LDC (30.6%). The increased use of centre-based child care at age 2–3 years is likely associated with changes in the reasons parents gave for using care. Recall that 16.7% of parents used care for their child's social development and interaction with other children at Wave 2, versus 1.0% at Wave 1.

Table 6.5 also presents figures for the mean number of hours per week of care. Results showed that quantity of care was strongly associated with mothers' hours of work. For 0–1 year olds, hours per week of LDC or home-based care were significantly different for each employment category (not currently working = 12.7 and 9.4 hrs/week; part-time = 16.7 and 13.7 hrs/week; full-time = 31.3 and 32.6 hrs/week). For 2–3 year olds, hours per week of LDC were also significantly different across categories (not currently working = 13.6, part-time = 17.2, full-time = 29.3); however, hours

Table 6.5 Type and quantity of child care received, by mothers' work hours (full-time, part-time, not currently working), B cohort, Waves 1 and 2

	Wave 1			Wave 2		
	Full-time (35+ hours/ week)	Part-time (< 35 hours/ week)	Not currently working	Full-time (35+ hours/ week)	Part-time (< 35 hours/ week)	Not currently working
Type of care	%			%		
Exclusive parental care	24.2	36.6	82.3	7.9	15.1	48.6
Long day care only	22.5	13.2	3.7	38.7	38.6	30.6
Family day care only	8.1	4.9	0.9	8.3	6.8	4.9
Informal drop-in care only	0.0	1.4	1.2	0.2	2.9	3.7
Relative care only	24.4	27.6	9.3	12.6	11.0	5.1
Non-relative care only	9.7	4.6	1.0	3.1	2.1	1.1
Mixed formal care	0.5	0.5	0.2	0.9	0.7	0.5
Mixed informal care	1.8	2.8	0.6	1.9	2.7	0.5
Mixed formal and informal care	8.8	8.3	0.8	26.4	20.0	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	377	1,517	3,191	552	1,773	2,264
Quantity of care	Mean			Mean		
Hours/week in LDC	31.3 ^a	16.7 ^a	12.7 ^a	29.3 ^c	17.2 ^c	13.6 ^c
No. of observations	114	302	144	365	1,010	828
Hours/week in FDC/home care	32.6 ^b	13.7 ^b	9.4 ^b	25.6 ^{d,e}	14.5 ^d	12.6 ^e
No. of observations	199	732	418	288	754	386

Notes: The "a--a" to "e--e" superscript pairs denote significant differences between means within work hours group comparisons, as determined by the non-overlap of their respective 95% confidence intervals. For example, the "a--a" superscript pair shows that the mean hours/week in LDC in Wave 1 are significantly different for mothers who work full-time, who work part-time, and who are not currently working. The "c--c" superscript pair shows a similar pattern in Wave 2. Percentages may not total 100% due to rounding.

of home-based care were only significantly different for full-time (mean = 25.6) vs part-time (mean = 14.5) and full-time vs not working (mean = 12.6). Weekly hours of care were similar for children whose mothers worked part-time or were not currently working.

Geographic location

Families' use of child care relies on the availability of caregivers, such as relatives, and licensed services, such as LDC and FDC. In this section the type and amount of care used by families living in metropolitan areas and regional areas are compared in order to determine whether different types of care might be more or less available (as shown by usage patterns) in these locations.⁶ Findings (presented in Table 6.6) indicate that, in general, there were very few differences in children's patterns of care. Only FDC showed a consistent variation, being used more by regional families than metropolitan families (4.2% vs 1.8% for 0–1 year olds; 7.5% vs 5.1% for 2–3 year olds). This may reflect a greater availability of FDC in rural and remote areas of Australia, and less availability of LDC and other care alternatives.

Quantity of care was similar for 0–1 year olds growing up in families living in metropolitan and regional areas. Two years later, however, there were significant differences. Of children who were 2–3 years old, those living in metropolitan areas attended significantly longer hours of care (means = 17.4 and 18.7) than those in regional areas (means = 14.8 and 16.0).

Cultural background: Language spoken at home

Families' cultural values also influence whether or not non-parental child care is used, and the type of care that families prefer. LSAC findings are based on families' actual use of care, so preferences

⁶ Metropolitan areas are defined as capital city statistical divisions, while regional areas are defined as the rest of the state/territory outside the capital city statistical divisions.

Table 6.6 Type and quantity of child care received, by geographic location, B cohort, Waves 1 and 2

	Wave 1		Wave 2	
	Metropolitan	Regional	Metropolitan	Regional
Type of care	%		%	
Exclusive parental care	64.5	66.3	30.5	33.4
Long day care only	8.6	6.3	34.8	33.9
Family day care only	1.8	4.2	5.1	7.5
Informal drop-in care only	1.3	1.0	3.4	2.3
Relative care only	16.2	14.5	8.4	7.7
Non-relative care only	2.7	2.7	1.7	1.7
Mixed formal care	0.2	0.5	0.4	1.0
Mixed informal care	1.4	1.2	1.6	1.2
Mixed formal and informal care	3.5	3.5	14.1	11.3
Total	100.0	100.0	100.0	100.0
No. of observations	3,194	1,913	2,852	1,754
Quantity of care	Mean		Mean	
Hours/week in LDC	19.2	17.1	18.7 ^a	16.0 ^a
No. of observations	388	174	1,417	794
Hours/week in FDC/home care	15.8	13.9	17.4 ^b	14.8 ^b
No. of observations	839	513	895	540

Notes: The "a-a" and "b-b" superscript pairs denote significant differences between means within geographic location group comparisons, as determined by the non-overlap of their respective 95% confidence intervals. The "a-a" superscript pair shows that the mean hours/week in LDC in Wave 2 are significantly different for children living in metropolitan and regional areas. The "b-b" superscript pair shows a similar result for the mean hours/week in FDC/home care. Percentages may not total 100% due to rounding.

Table 6.7 Type and quantity of child care received, by language spoken at home, B cohort, Waves 1 and 2

	Wave 1		Wave 2	
	English only	Other language	English only	Other language
Type of care	%		%	
Exclusive parental care	64.2	71.3	29.4	47.1
Long day care only	8.2	4.8	35.6	26.3
Family day care only	2.9	0.6	6.5	2.3
Informal drop-in care only	1.2	0.8	3.3	1.0
Relative care only	15.0	19.4	7.3	13.9
Non-relative care only	2.8	1.6	1.8	0.9
Mixed formal care	0.3	0.2	0.6	0.5
Mixed informal care	1.4	0.4	1.6	0.5
Mixed formal and informal care	3.9	0.9	13.9	7.4
Total	100.0	100.0	100.0	100.0
No. of observations	4,555	552	4,150	456
Quantity of care	Mean		Mean	
Hours/week in LDC	18.4	21.9	17.5	20.1
No. of observations	531	31	2,051	160
Hours/week in FDC/home care	14.1 ^a	23.3 ^a	15.3 ^b	25.9 ^b
No. of observations	1,221	131	1,312	123

Notes: The "a-a" and "b-b" superscript pairs denote significant differences between means within language group comparisons, as determined by the non-overlap of their respective 95% confidence intervals. The "a-a" superscript pair shows that for hours/week in FDC/home care at Wave 1, there is a significant difference between English only and other language. The "b-b" superscript pair shows a similar result at Wave 2. Percentages may not total 100% due to rounding.

are surmised rather than known. Nevertheless, the figures presented in Table 6.7 suggest that children's experiences of child care were different for those growing up in families who mainly spoke a language other than English (LOTE) at home compared to English-only speaking families. In Wave 1, not only were LOTE 0–1 year olds more likely to be receiving exclusive parental care (71.3% vs 64.2% for English-only families), but when they were in care it was more likely to be with relatives (19.4% vs 15.0%) and less likely to be in formal care settings, either in LDC or FDC only (5.4% vs 11.1%) or mixed with informal care (0.9% vs 3.9%).

A similar pattern was evident two years later. At Wave 2, 2–3 year olds growing up in LOTE families were less likely to be attending child care (52.9%) than children in English-only speaking families (70.6%), less likely to be in government-regulated care (28.6% vs 42.1%), and more likely to be in care with a relative (13.9% vs 7.3%).

Differences were also apparent for the amount of care received from relatives and other home-based care arrangements. For both 0–1 year olds and 2–3 year olds, the quantity of care received in home-based care was significantly higher for children growing up in LOTE families (means = 23.3 and 25.9 hours/week) than for children growing up in English-only speaking families (means = 14.1 and 15.3). However, there was no difference in weekly hours of LDC for LOTE and English-only families.

Number of children in the household

The presence of siblings is an important factor influencing children's development. In this section the number of children in the household (i.e. study child plus siblings) is examined in relation to the use of non-parental child care. Figures for the proportion of children receiving exclusive parental care (Table 6.8) show that the use of child care for the study child was substantially reduced as the number of children in the household increased. Only 25.6% of 0–1 year olds who had two or more siblings (3+ children in the household) were receiving regular child care, compared to 40.3% of 0–1 year olds with no siblings. These differences were also apparent two

Table 6.8 Type and quantity of child care received, by number of children in the household, B cohort, Waves 1 and 2

	Wave 1			Wave 2		
	Children in household			Children in household		
	1	2	3+	1	2	3+
Type of care	%			%		
Exclusive parental care	59.7	64.6	74.4	23.5	27.9	41.8
Long day care only	8.3	8.9	5.4	37.7	36.5	29.5
Family day care only	2.6	3.0	1.9	4.7	6.6	5.9
Informal drop-in care only	1.3	1.0	1.3	1.5	3.3	3.4
Relative care only	20.2	14.3	10.2	9.9	8.1	7.1
Non-relative care only	2.5	2.7	2.9	2.0	1.3	2.0
Mixed formal care	0.2	0.4	0.3	0.5	0.4	1.0
Mixed informal care	1.1	1.7	1.1	1.0	1.4	1.8
Mixed formal and informal care	4.2	3.5	2.3	19.1	14.4	7.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of observations	2,019	1,876	1,212	891	2,261	1,454
Quantity of care	Mean			Mean		
Hours/week in LDC	20.5 ^a	17.5	16.4 ^a	20.9 ^{b, c}	17.1 ^b	16.2 ^c
No. of observations	250	223	89	508	1,142	561
Hours/week in FDC/home care	15.8	15.2	13.5	18.7 ^{d, e}	15.9 ^d	15.3 ^e
No. of observations	637	480	235	336	728	371

Notes: The "a–a" to "e–e" superscript pairs denote significant differences between means within number of children group comparisons, as determined by the non-overlap of their respective 95% confidence intervals. For example, the "a–a" superscript pair shows that for hours/week in LDC at Wave 1, mean hours for families with one child in the household are significantly different from mean hours for families with three or more children in the household. Percentages may not total 100% due to rounding.

years later: 58.2% of 2–3 year olds with two or more siblings were attending child care compared to 76.5% of children without siblings and 72.1% of children with one sibling.

Inspection of the distributions across the eight types of child care showed that usage was similarly reduced for the three main types of care: LDC, relative only, mixed formal and informal. Other types of care, however, showed little or no change as the number of children increased: drop-in care, non-relative care, mixed formal and mixed informal care. An interesting exception was FDC, which had less usage as household size increased in Wave 1, but more usage in Wave 2. Possible reasons for this are the lower cost of FDC (compared to LDC) and greater opportunity for siblings to be cared for together, both of which would make FDC an attractive option for families with three or more children.

The tendency to reduce the use of care as the number of children in the household increased was reflected in the amount of care received each week. Results in Table 6.8 showed that children with two or more siblings attended child care for the fewest number of hours, and children without siblings received the most hours. Significant differences were identified in three of the four comparisons: for hours of LDC received by 0–1 year olds and 2–3 year olds with none vs two or more siblings; and for hours of home-based care received by 2–3 year olds.

6.7 Summary

The findings reported in this chapter have shown that although the majority (65%) of Australian 0–1 year olds were cared for exclusively by their parents, by the time they were two to three years of age over 70% were attending some type (or types) of non-parental child care on a regular part-time basis (20–21 hours/week on average). The findings confirm earlier reports using LSAC data, which suggest that the most rapid increase in the use of care is in the year after the child turns one, when the proportion reached 65% (Australian Institute of Family Studies, 2006). During this time, families also move from a reliance on relatives as the main providers of child care for their 0–1 year olds to using long day care centres, either alone or in combination with care by relatives. The shift towards a group care experience for toddlers and 2-year-olds is explained to some extent by the change in families' reasons for using child care. In infancy, these are focused primarily on parents' employment or other needs, but by the time the children reach age 2–3, parents identify a wider range of reasons, including the child's need for social interaction with peers. As a result, one-third to one-half of all 2–3 year olds experienced centre-based child care. The early use of LDC (from age 1 year) by such a large proportion of Australian families is an important new finding, and warrants a closer examination of the quality of children's experiences across services and availability of centre-based programs across geographical locations.

On the other hand, LSAC figures show that a sizable proportion of families were not using care (65.1% in Wave 1; 31.6% in Wave 2). Most of these parents said that care was not needed; however, a small proportion said they did not use care because of problems with cost, access, quality, or unavailability of a trusted friend or family member (their preferred care arrangement). Future waves of LSAC will be able to show whether or not these problems continue as the children get older.

For the children who received regular child care, care type was aligned with quantity and multiplicity of care. For example, children who were cared for in informal home-based care typically received fewer hours per week than children who attended formal centre-based care. Also, children who attended multiple care arrangements that included the use of formal care had the highest quantity of care, but multiple care was also strongly associated with the use of informal care arrangements with relatives and non-relatives. These findings underline the difficulties researchers face in disentangling the effects (often negative in nature) of long hours and multiple arrangements on children's developmental outcomes. The approach used in the NICHD ECCRN (2005) study and in the present report, which is to compute weekly hours for the two main types of care (LDC and in-home care), provides a partial solution. However, many children will experience both types, so analysts also need to address the combined effects of these arrangements.

The final section of this chapter demonstrated that not only are type, quantity and multiplicity of care intertwined, but these care characteristics are also interrelated with characteristics of the family context. Economic (family socio-economic position, maternal work hours), cultural (languages spoken at home) and demographic (geographic location, number of children in the household)

factors were all identified as having an important influence on the type(s) of child care attended and the quantity of care received each week.

The influence of families' economic capacity on children's experiences of child care was most clearly seen in mothers' hours of work, which strongly reflected weekly hours of care. Full-time work and high family SEP were linked with types of care with extended hours (e.g., LDC, FDC, mixed formal and informal) and those that are flexible but more expensive (e.g., care with a non-relative such as a nanny). On the other hand, care with relatives was accessed equally by all families.

Families' cultural background affected child care in two ways: LOTE families were more likely to provide exclusive parental care for their children than English-only speaking families; and children of LOTE families who did use care were more likely to be cared for by relatives and to experience longer hours of care. Further investigation of the study data will be able to ascertain the reasons why LOTE families are less frequent users of formal child care services.

Geographical location had a relatively minor influence on children's experiences of child care, as measured by LSAC. Differences were seen in a lower use of LDC and a greater use of FDC by families living in regional areas, and by age 2 to 3 years a lower number of hours per week, than families in metropolitan areas. Family demographics were a significant influence on children's child care experience, with the use of care and the amount of care received each week decreasing as the number of children in the household increased. Demographic circumstances such as these have tended to receive less attention in studies of child care, but studies using the LSAC data are showing that they make a difference to children's experiences of care (Harrison et al., 2009) as well as to child outcomes (Gray et al., 2008; Harrison & McLeod, 2010; Wake et al., 2008), and therefore warrant further investigation.

6.8 Further reading

Gray, M., Baxter, J., & Alexander, M. (2008). Parent-only care: A child care choice for working couple families? *Family Matters*, 79, 42–49.

Harrison, L. (2008). Does child care quality matter? Associations between social-emotional development and non-parental care in a representative sample of Australian children. *Family Matters*, 79, 14–25.

Harrison, L., & Ungerer, J. (2005) What can the Longitudinal Study of Australian Children tell us about infants' and 4 to 5 year olds' experiences of early childhood education and care? *Family Matters*, 72, 26–35.

Harrison, L., Ungerer, J., Smith, J., Zubrick, S., & Wise, S., with Press, F., Waniganayake, M., & the LSAC Research Consortium. (2009). *Child care and early education in Australia: The Longitudinal Study of Australian Children* (Social Policy Research Paper No. 40). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

6.9 References

Australian Institute of Family Studies. (2006). *Growing Up in Australia: The Longitudinal Study of Australian Children. 2005–2006 Annual report*. Melbourne: AIFS.

Bowes, J., Harrison, L. J., Sweller, N., Taylor, A., & Neilsen-Hewitt, C. (2009). *From child care to school: Influences on children's adjustment and achievement in the year before school and the first year of school. Findings from the Child Care Choices Longitudinal Extension Study*. Sydney: NSW Department of Community Services.

Gray, M., Baxter, J., & Alexander, M. (2008). Parent-only care: A child care choice for working couple families? *Family Matters*, 79, 42–49.

Harrison, L. J., & McLeod, S. (2010). Risk and protective factors associated with speech and language impairment in a nationally representative sample of 4- to 5-year-old children. *Journal of Speech, Language, and Hearing Research*, 53(2), 508–529.

Harrison, L. J., & Ungerer, J. A. (2000). *Children and child care: A longitudinal study of the relationships between developmental outcomes and use of non-parental care from birth to six*. Paper presented at the Commonwealth Family and Community Services Panel Data and Policy Conference, Canberra, ACT.

Harrison, L. J., Ungerer, J. A., Smith, G. J., Zubrick, S. R., & Wise, S., with Press, F., Waniganayake, M., & the LSAC Research Consortium. (2009). *Child care and early education in Australia: The Longitudinal Study of Australian Children* (Social Policy Research Paper No. 40). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

Kohen, D., Hertzmann, C., & Willms, J. D. (2002) The importance of quality child care. In J. D. Willms (Ed.), *Vulnerable children: Findings from Canada's National Longitudinal Survey of Children and Youth* (pp. 261–276). Edmonton: University of Alberta Press.

- Loeb, S., Fuller, B., Kagan, S., & Carrol, B. (2004). Child care in poor communities: Early learning effects of type, quality and stability. *Child Development*, 75, 47–65.
- Love, J. M., Harrison, L. J., Sagi-Schwartz, A., van IJzendoorn, M. H., Ross, C., Ungerer, J. A., et al. (2003). Child care quality matters: How conclusions may vary with context. *Child Development*, 74, 1021–1033.
- National Institute of Child Health and Human Development Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. *Child Development*, 71, 960–80.
- National Institute of Child Health and Human Development Early Child Care Research Network. (2003). Does amount of time spent in child care predict socio-emotional adjustment during the transition to kindergarten? *Child Development*, 74, 976–1005.
- National Institute of Child Health and Human Development Early Child Care Research Network (Ed.) (2005). *Child care and child development: Results from the NICHD Study of Early Child Care and Youth Development*. New York: Guilford Press.
- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., Taggart, B., & Elliot, K. (2003). *The Effective Provision of Pre-School Education (EPPE) Project: Findings from the pre-school period*. London: Institute of Education, University of London and Sure Start.
- Wake, M., Sanson, A., Berthelsen, D., Hardy, P., Misson, S., Smith, K., Ungerer, J., & the LSAC Research Consortium. (2008). *How well are Australian infants and children aged 4 to 5 years doing?* (Social Policy Research Paper No. 36). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

Family education environment

7

Suzanne MacLaren

Australian Institute of Family Studies

Children's experiences of early education and their home learning environment are important influences on later educational outcomes (Melhuish et al., 2008). This chapter looks at various factors that make up the educational environment of the home, and how families differ in the manner in which they support children's early learning. Parenting factors considered include the frequency with which the child is read to, which has been linked to better developmental outcomes and greater motivation to learn (Melhuish, 2008). Other parenting factors discussed in this chapter include whether or not parents help with homework in the early years of school, are involved in children's classroom activities or do activities with children at home. These factors are important in shaping the way a child comes to view his or her school environment, and how motivated about and engaged in learning the child is (Mansour & Martin, 2009). Mothers' expectations about how far their child will progress through the education system are also examined, as well as family differences on children's exposure to television and how many books are available for the child to read at home.

This chapter uses LSAC data for Waves 1–3 for the K cohort to examine how often children are helped with their homework, mothers' involvement in class activities, mothers' expectations of child's educational achievements, and numbers of books in the home.¹ Data from the B cohort at Wave 3, when children were aged 4–5 years, is used in addition to data from the K cohort to examine how often child spend time reading with a family member, and how much time children spend watching television.

The analyses examine how various measures of the quality of the child's home learning environment vary for different subpopulation groups. Comparisons are made between the following subpopulation groups (see Chapter 2 for details about these groups):

- family socio-economic position (SEP) (lowest 25%, middle 50% and highest 25%);
- main language spoken at home by the mother (English, not English);
- highest level of parental education (highest qualification between both parents) (lower than Year 12, lower than Year 12 with diploma/certificate/other, Year 12, Year 12 with diploma/certificate/other, tertiary);
- mother's age at the birth of the child (younger than 25, 25–29, 30–34, 35–39, 40 or older); and
- type of family (two-parent family, lone mother family).

This chapter compares the percentages of mothers from different subpopulation groups who gave various responses to the questions, and uses a chi-square test of independence to indicate whether there is a significant relationship between different subpopulation groups and responses to the questions. For example, it tests whether there is a relationship between the family's socio-economic position and the frequency with which mothers reported helping their children with their homework. In interpreting the results of these analyses it is important to recognise that many of the factors explored here are related (for example, parental education is one of the components of the measure of family socio-economic position), and further multivariate analysis is required to further define the relationships between the different factors. This chapter intends to provide an overview of the topic, and highlight potential areas for further research.

¹ Because the majority of primary parents were mothers (see Chapter 1), results in this chapter are presented for mothers only.

7.1 Helping with homework

When the K cohort children were aged 6–7 at Wave 2, there was a significant relationship between the socio-economic position of the child's family and the frequency with which mothers helped their child with homework (Table 7.1). Mothers from the middle 50% on the measure of family socio-economic position were more likely than lowest or highest ranking families to assist their children with homework daily. The wording of this question changed slightly in Wave 3 to ask whether any family member had helped the child with their homework, but the relationship with the family socio-economic position remained significant.

Table 7.1 Frequency with which mothers (Wave 2) and any family member (Wave 3) helped children with homework, by family socio-economic position, K cohort, Waves 2 and 3

	Lowest 25%	Middle 50%	Highest 25%
	%		
Wave 2 ^a			
Daily	68.1	72.3	70.4
A few times a week	23.1	21.2	24.5
Once a week	5.8	4.9	4.1
A few times a month or less	3.0	1.6	1.0
Total	100.0	100.0	100.0
No. of observations	1,054	2,112	1,038
Wave 3 ^b			
Five or more days a week	26.5	29.1	26.1
3 or 4 days a week	33.7	36.5	36.3
1 or 2 days a week	27.4	26.2	28.3
Less than once a week	8.7	5.9	6.8
Never	3.7	2.2	2.5
Total	100.0	100.0	100.0
No. of observations	1,033	2,067	1,019

Notes: ^a Wave 2: $\chi^2(6, n = 4,204) = 22.0, p < .01$. ^b Wave 3: $\chi^2(8, n = 4,119) = 20.8, p < .05$. Percentages may not total 100% due to rounding.

A significant relationship also existed at Wave 2 between the type of family and the frequency of mothers helping with homework: mothers in two-parent families were more likely to spend time helping with homework (72% helped daily) than lone mothers (64% helped daily) (Table 7.2). Despite wording differences (see above), the significance of this relationship remained when the children were 8–9 years old.

7.2 Involvement in class activities

Mothers of K cohort children were asked at Waves 2 and 3 about their involvement with their child's classroom activities. Table 7.3 shows the percentage of mothers who indicated that they had visited the child's class, contacted the child's teacher, and attended a school event during the last school term, for the three levels of family SEP. Mothers were more likely to visit their child's class when the children were aged 6–7 (Wave 2) than when they were aged 8–9 (Wave 3). There was a significant association between family socio-economic position and all three items relating to the mother's involvement with their child's class, for both waves. For example, in Wave 3, 64% of mothers from the lowest socio-economic position had recently attended a school event, while 82% of mothers in the highest socio-economic position had done so. This trend is consistent for all three questions relating to mothers' involvement in their child's class, with involvement being more likely as family socio-economic status increases.

There was also a significant relationship between the main language spoken by the mother at home and her involvement in her child's school activities. Table 7.4 shows that when children were aged 6–7 (Wave 2) and 8–9 (Wave 3), levels of involvement were higher for the mothers who mainly spoke English at home across nearly all activities. In Wave 2, 87% of mothers who spoke English

Table 7.2 Frequency with which mothers (Wave 2) and any family member (Wave 3) helped children with homework, by family type, K cohort, Waves 2 and 3

	Two-parent family	Lone-mother family
	%	
Wave 2 (mothers) ^a		
Daily	71.8	64.3
A few times a week	22.0	25.2
Once a week	5.1	6.7
A few times a month or less	1.5	3.8
Total	100.0	100.0
No. of observations	3,609	601
Wave 3 (any family member) ^b		
Five or more days a week	28.9	22.0
3 or 4 days a week	36.2	31.9
1 or 2 days a week	26.4	30.2
Less than once a week	6.3	10.3
Never	2.2	5.6
Total	100.0	100.0
No. of observations	3,543	580

Notes: ^a Wave 2: $\chi^2(3, n = 4,210) = 26.9, p < .01$. ^b Wave 3: $\chi^2(4, n = 4,123) = 52.6, p < .01$. Percentages may not total 100% due to rounding.

Table 7.3 Mother's involvement in class activities during the previous school term, by family socio-economic position, K cohort, Waves 2 and 3

	Wave 2			Wave 3		
	Lowest 25%	Middle 50%	Highest 25%	Lowest 25%	Middle 50%	Highest 25%
	%			%		
Visited study child's class ^a	81.4	87.7	88.8	64.6	71.2	73.2
Contacted the teacher about study child ^b	69.8	72.4	76.2	67.2	77.2	82.3
Attended school event ^c	68.0	79.2	82.0	63.8	72.9	81.8
No. of observations	1,076	2,153	1,061	1,033	2,067	1,019

Notes: ^a Wave 2: $\chi^2(2, n = 4,290) = 33.9, p < .01$; Wave 3: $\chi^2(2, n = 4,119) = 23.0, p < .01$. ^b Wave 2: $\chi^2(2, n = 4,290) = 11.2, p < .05$; Wave 3: $\chi^2(2, n = 4,119) = 70.9, p < .01$. ^c Wave 2: $\chi^2(2, n = 4,290) = 75.1, p < .01$; Wave 3: $\chi^2(2, n = 4,119) = 81.8, p < .01$.

Table 7.4 Mothers' involvement in class activities during the previous school term, by main language spoken at home by mother, K cohort, Waves 2 and 3

	Wave 2		Wave 3	
	English	Other	English	Other
	%		%	
Visited study child's class ^a	87.0	80.9	70.4	65.3
Contacted the teacher about study child ^b	72.3	72.2	76.0	70.4
Attended school event ^c	77.7	70.4	73.9	60.8
No. of observations	3,687	609	3,576	547

Notes: ^a Wave 2: $\chi^2(1, n = 4,296) = 19.6, p < .01$; Wave 3: $\chi^2(1, n = 4,123) = 7.0, p < .05$. ^b Wave 2: $\chi^2(1, n = 4,296) = 0.0, p = .959$; Wave 3: $\chi^2(1, n = 4,123) = 9.4, p < .05$. ^c Wave 2: $\chi^2(1, n = 4,296) = 18.5, p < .01$; Wave 3: $\chi^2(1, n = 4,123) = 48.6, p < .01$.

at home visited their child's class during the last school term, while 81% of mothers whose main language was not English had done so. This disparity is also seen at Wave 3, with 70% of English-speaking mothers visiting the class, compared with 65% of mothers whose main language was not English visiting the class. This pattern is also evident for mothers who attended a school event, but for contact with the child's teacher at Wave 2 there was no statistically significant difference between the two groups.

7.3 Mother's expectations of child's future educational achievements

At Waves 2 and 3, mothers of K cohort children were asked to indicate whether they expected their child to:

- not finish high school;
- finish high school only;
- complete a trade or vocational training course;
- go to university and complete a degree; or
- complete postgraduate qualifications.

Table 7.5 Mothers' expectations of child's educational achievements, by highest level of parental education (both Parent 1 and Parent 2), K cohort, Waves 2 and 3

Parents' highest level of education					
	Lower than Year 12	Lower than Year 12 and diploma/ certificate/ other	Year 12	Year 12 and diploma/ certificate/ other	Tertiary
	%				
Wave 2 ^a					
Don't know	6.9	3.0	2.5	3.4	2.3
Leave school before finishing secondary	3.1	2.5	1.9	0.8	0.5
Complete secondary only	26.1	22.4	19.9	15.3	5.9
Complete a trade or vocational training course	19.7	21.4	15.5	18.0	8.9
Go to university and complete a degree	38.7	44.5	54.8	54.9	67.2
Complete postgraduate qualifications	5.5	6.2	5.5	7.7	15.2
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	418	780	563	850	1,684
Wave 3 ^b					
Don't know	5.3	3.3	1.6	3.1	1.9
Leave school before finishing secondary	5.9	4.1	1.8	0.9	0.8
Complete secondary only	24.5	21.5	21.4	11.9	5.1
Complete a trade or vocational training course	21.5	26.0	19.1	20.5	10.5
Go to university and complete a degree	38.3	39.9	51.2	54.8	68.3
Complete postgraduate qualifications	4.5	5.4	5.0	8.8	13.4
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	380	727	540	825	1,650

Notes: ^a Wave 2: $\chi^2(20, n = 4,295) = 460.5, p < .01$. ^b Wave 3: $\chi^2(20, n = 4,122) = 516.8, p < .01$. Percentages may not total 100% due to rounding.

Table 7.5 shows a significant relationship for both waves between mothers' expectations of their children's future educational achievements and the level of parental education (the highest level of education between the two parents). Although mothers from all groups were most likely to expect their child to gain a university degree, higher levels of mothers' expectations of their children's educational achievements were associated with higher levels of parental education. In Waves 2 and 3, 82% of mothers from a family where at least one of the parents had a tertiary degree expected their child to also gain a tertiary degree. In contrast, 43–44% of mothers in the lowest educational category at both waves expected their child to gain a degree. In Wave 2, 26% of mothers from families in which neither parent had completed Year 12 expected their child to complete Year 12 only, while only 6% of mothers in the highest educational category had this expectation. This trend was also apparent in Wave 3.

Table 7.6 shows a significant relationship between the mother's age at the birth of her child and her expectations for her child's education. While a university degree was again the most frequent response for all groups, K cohort mothers in Waves 2 and 3 who were younger than 25 at the time of their child's birth tended to have lower expectations of how far their child would go in their education: 54% (Wave 2) and 51% (Wave 3) expecting their child to at least complete a degree, compared with 68% (Wave 2) and 66% (Wave 3) of mothers who were 30–34 years old.

Table 7.6 Mothers' expectations of child's educational achievements, by mother's age at birth of child, K cohort, Waves 2 and 3

Mother's age at birth of child					
	Under 25 years	25–29 years	30–34 years	35–39 years	40 years or older
	%				
Wave 2 ^a					
Don't know	4.3	2.3	3.0	4.8	3.2
Leave school before finishing secondary	3.5	1.3	1.2	0.6	0.5
Complete secondary only	21.6	15.8	13.1	15.1	11.6
Complete a trade or vocational training course	16.8	17.7	14.7	12.1	13.6
Go to university and complete a degree	45.6	54.8	58.7	55.1	56.4
Complete postgraduate qualifications	8.1	8.1	9.3	12.3	14.8
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	625	1,389	1,464	661	131
Wave 3 ^b					
Don't know	4.4	2.2	2.5	3.0	3.8
Leave school before finishing secondary	4.9	2.2	1.6	1.7	1.2
Complete secondary only	18.5	16.5	12.3	11.4	9.1
Complete a trade or vocational training course	21.5	19.9	17.5	15.1	14.4
Go to university and complete a degree	42.5	51.8	57.0	60.0	60.1
Complete postgraduate qualifications	8.3	7.5	9.1	8.9	11.4
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	576	1,335	1,411	646	129

Notes: ^a Wave 2: $\chi^2(20, n = 4,270) = 97.7, p < .01$. ^b Wave 3: $\chi^2(20, n = 4,097) = 93.6, p < .01$. Percentages may not total 100% due to rounding.

7.4 Reading to child

Recent research has emphasised the importance of parents reading to their children as one of many factors that create a positive home learning environment. This in turn has a significant effect on a child's academic achievement (Melhuish, 2008). This section shows the frequency with which children from both the K and the B cohorts had books read to them when they were 4–5 years old.

When children were aged 4–5 years (for both the K cohort at Wave 1 and the B cohort at Wave 3), there was a significant relationship between the frequency with which their parents or someone else in the family read books to them during the week and the highest level of education achieved by their parents (both Parent 1 and Parent 2) (Table 7.7). For both cohorts, the children who were read to most frequently by their parents or someone in the family were those whose parents had the highest educational qualification.

Table 7.7 Frequency with which child is read to, by highest level of parental education (both Parent 1 and Parent 2), K cohort Wave 1 and B cohort Wave 3

	Lower than Year 12	Lower than Year 12 and diploma/ certificate/ other	Year 12	Year 12 and diploma/ certificate/ other	Tertiary
	%				
K cohort, Wave 1 ^a					
None	11.4	4.5	4.3	3.1	1.5
1 or 2 days	30.0	26.6	24.6	22.1	10.7
3–5 days	30.3	34.4	34.0	30.8	25.5
Every day	28.3	34.6	37.1	44.0	62.2
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	508	902	640	949	1,834
B cohort, Wave 3 ^b					
Not in the past week	19.3	9.1	9.8	7.1	2.5
1 or 2 days	28.1	22.1	16.9	17.4	9.5
3–5 days	26.0	31.8	31.7	29.1	21.4
6–7 days	26.6	37.0	41.6	46.4	66.6
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	280	576	529	1,047	1,862

Notes: ^a K cohort: $\chi^2(12, n = 4,833) = 442.8, p < .01$. ^b B cohort: $\chi^2(12, n = 4,294) = 457.1, p < .01$. Percentages may not total 100% due to rounding.

The age of the mother at the birth of the child was also significantly associated with the frequency with which the child was read to. Table 7.8 shows that for both cohorts, the older the mother was at the time of the birth of her child, the more likely the child was to be read to by someone in the family every day.

7.5 Number of children's books in the home

At Wave 2, when children in the K cohort were 6–7 years old, there was a significant relationship between the socio-economic position of the child's family and the number of age-appropriate children's books they had in their home. Although the majority of mothers (65%) in the lowest socio-economic position had more than 30 books for their children to read, a greater percentage of mothers (93%) in the highest socio-economic position had more than 30 children's books in their home (Table 7.9).

There was also a significant relationship between the main language the mother spoke at home and the number of books she had for her child. Mothers whose main language was other than

Table 7.8 Frequency with which child is read to, by mother's age at birth of child, K cohort Wave 1 and B cohort Wave 3

	Under 25 years	25–29 years	30–34 years	35–39 years	40 years or older
	%				
K cohort, Wave 1 ^a					
None	5.7	4.1	3.5	4.4	–
1 or 2 days	25.9	21.2	19.2	18.0	13.1
3–5 days	34.6	31.6	28.6	26.5	31.1
Every day	33.8	43.2	48.7	51.1	55.8
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	759	1,546	1,616	733	152
B cohort, Wave 3 ^b					
Not in the past week	10.3	9.1	6.1	5.4	3.8
1 or 2 days	20.8	18.6	14.3	13.5	14.3
3–5 days	32.7	24.9	25.7	26.3	24.8
6–7 days	36.2	47.4	53.9	54.9	57.2
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	575	1,128	1,664	747	171

Notes: ^a K cohort: $\chi^2(12, n = 4,806) = 80.3, p < .01$. ^b B cohort: $\chi^2(12, n = 4,285) = 94.9, p < .01$. Percentages may not total 100% due to rounding.

Table 7.9 Number of children's books in the home, by family socio-economic position, K cohort, Wave 2

Number of books	Socio-economic position ^a			Mother's language ^b	
	Lowest 25%	Middle 50%	Highest 25%	English	Not English
	%			%	
None	0.6	–	–	0.1	0.7
1–10	10.4	2.7	0.4	2.2	15.8
11–20	10.3	6.3	1.8	4.9	14.3
21–30	13.5	8.2	4.7	8.3	12.7
More than 30	65.2	82.8	93.1	84.4	56.5
Total	100.0	100.0	100.0	100.0	100.0
No. of observations	1,077	2,163	1,067	3,701	612

Notes: ^a Socio-economic position: $\chi^2(8, n = 4,307) = 328.7, p < .01$. ^b Mother's language: $\chi^2(4, n = 4,313) = 424.4, p < .01$. Percentages may not total 100% due to rounding.

English were less likely to have more than 30 books at home for their child to read; 57% had more than 30 books available to their child, compared with 84% of English speaking mothers (Table 7.9).

7.6 Television in child's bedroom

On average, 20% of children had a television in their bedroom. The family's socio-economic position was significantly associated with the child having a television in their bedroom: 30% of children from families in the lowest socio-economic position had a television in their bedroom, while only 6% of those from families from the highest socio-economic position did so (Table 7.10).

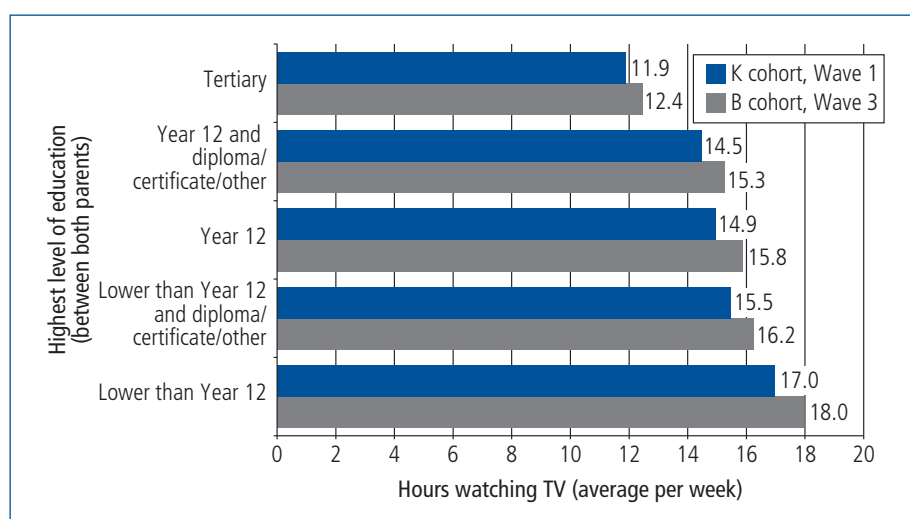
Table 7.10 Whether child has a television in their bedroom, by family socio-economic position, K cohort, Wave 2

	Lowest 25%	Middle 50%	Highest 25%
	%		
Television in bedroom	30.0	19.1	6.3
No television in bedroom	70.0	81.0	93.7
Total	100.0	100.0	100.0
No. of observations	1,077	2,163	1,067

Notes: $\chi^2(2, n = 4,307) = 189.7, p < .01$. Percentages may not total 100% due to rounding.

7.7 Time spent watching television

At Wave 3, when the K cohort children were 8–9 years old, the education level of their parents (the highest level of education between both of their parents) was significantly associated with the amount of time children spent watching television per week.² For both cohorts, the more highly educated the child's parents were, the less the child watched television. The mean number of hours of television watched per week for children with at least one tertiary-educated parent was about 12 hours, while children for whom neither parent completed Year 12 watched about 17 hours of television on average per week (Figure 7.1).



Notes: K cohort: $F(4, 268) = 37.9, p < .01$; B cohort: $F(4, 268) = 29.9, p < .01$.

Figure 7.1 Average weekly hours spent watching television, K cohort Wave 1 and B cohort Wave 3

7.8 Summary

This chapter demonstrates significant differences between subpopulation groups on aspects of the home learning environment. However, in interpreting the results of these analyses it is important to recognise that many of the factors explored here are related (for example, parents' level of education is likely to be related to their age), and further analysis is required to further define the relationships between the different factors.

In Waves 2 and 3 for the K cohort, socio-economic position was significantly associated with the amount of time families spent helping children with homework, with mothers (Wave 2) or other

² Data on time spent watching television is based on responses from the primary parent (Parent 1); not necessarily the mother.

family members (Wave 3) from families with lower socio-economic position spending less time helping children with homework than those from families with a higher socio-economic position. Family type was also consistently related to the frequency with which mothers (Wave 2) or other family members (Wave 3) helped children with homework, with children being less likely to be helped if they were in a lone-mother family.

Mothers in the K cohort were more involved in their child's class activities in Waves 2 and 3 if their family had a socio-economic position in the middle 50% or highest 25%. Levels of involvement were also higher for most activities for mothers who spoke English at home compared to mothers who did not speak English at home.

Mothers in the K cohort (Waves 2 and 3) had higher expectations of their child's future educational achievements if they (or their partner) had higher levels of education. While keeping in mind that the age of the parent is likely to be related to their level of education, it is also interesting to note that there was also a significant relationship between the mothers' age and her expectations for her child's education, with older mothers tending to have higher expectations. However, the majority of mothers from all groups expected their child to reach university level.

The level of education of the parents was also significantly related to the amount of time both the K cohort (Wave 1) and B cohort (Wave 3) (4–5 year old children) spent reading with their parents or another household member; children of more highly educated parents spent more time on this activity. Children of older mothers were also read to more often. Socio-economic position was significantly related to the number of children's books a family had in the home, with mothers in the K cohort (Wave 2) who were from a middle or higher socio-economic position being more likely to have a large number of age-appropriate books for their children. Mothers who spoke English at home were also more likely to have more books for their children.

Socio-economic position was significantly related to children having a television in their bedroom, with children in the lowest socio-economic position more likely to have a television in their room. Children from the lowest socio-economic position were found to spend more time watching television than their peers from families with a higher socio-economic position (both cohorts).

7.9 Further reading

Berthelsen, D., & Walker, S. (2008). Parents' involvement in their children's education. *Family Matters*, 79, 34–41.

Smith Family. (2008). *Home-to-school transitions for financially disadvantaged children: Final report*. Sydney: Smith Family.

7.10 References

Melhuish, E. C., Phan, M. B., Sylva, K., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2008). Effects of home learning environment and preschool centre experience upon literacy and numeracy development in early primary school. *Journal of Social Issues*, 64(1), 95–114.

Mansour, M., & Martin, A. J. (2009). Home, parents, and achievement motivation: A study of key home and parental factors that predict student motivation and engagement. *Australian Educational and Developmental Psychologist*, 26(2), 111–126.

A longitudinal view of children living in disadvantaged neighbourhoods

8

Ben Edwards

Australian Institute of Family Studies

In Australia, there has been an increasing interest in area-based initiatives to address locational disadvantage for families and communities (Edwards et al., 2009; Muir et al., 2009). There are several reasons for the interest in area-based initiatives. Firstly, the Australian Government's Social Inclusion Agenda (Australian Government, 2010) has an explicit focus on locational disadvantage. Secondly, there has been an increase in income inequality in neighbourhoods in many developed nations, including Australia (Hunter, 2003). Finally, there are numerous studies, both international (e.g., Leventhal & Brooks-Gunn, 2000) and Australian (Edwards, 2005; Edwards & Bromfield, 2009) that have found that neighbourhood socio-economic disadvantage is correlated with worse outcomes for children and youth, even after family factors are taken into account.

There are several possible ways in which neighbourhood socio-economic disadvantage could influence young children's development. The quality of neighbourhood resources and services may be poorer in more disadvantaged areas; for example, parents' ratings of the quality of neighbourhood facilities are lower in more disadvantaged neighbourhoods (Edwards, 2006). High rates of joblessness and residential mobility also characterise many disadvantaged neighbourhoods, which affect community social capital (Sampson, Morenoff, & Gannon-Rowley, 2002). For instance, lower neighbourhood socio-economic status and higher residential stability in the neighbourhood have been associated with less social interaction and fewer connections between people, lower levels of reciprocity, and lower expectations of shared child control and sense of belonging (Edwards, 2006; Sampson, Morenoff & Earls, 1999). Crime rates are generally higher and ratings of neighbourhood safety are also generally lower in more disadvantaged neighbourhoods (Sampson et al., 1999). In addition, parental concerns about the safety of neighbourhoods can directly affect their mental health, which in turn can impair parenting (Leventhal & Brooks-Gunn, 2000; Orr et al., 2003).

Prolonged as opposed to transitory exposure to living in disadvantaged neighbourhoods may have more detrimental effects on children's development (Sampson, Sharkey, & Raudenbush, 2008; Timberlake, 2007). Changes in the level of neighbourhood disadvantage to which children are exposed may be due to the "gentrification" of the neighbourhoods in which they have lived since birth or to their families' residential mobility. Data from the Australian Bureau of Statistics (ABS) 2006 Census of Population and Housing for the whole of Australia (ABS, 2010) suggests that many children and youth moved in the 5 years prior to the Census. More children and youth move to another residence outside their neighbourhood (24% of 5–14 year olds and 28% of 15–24 year olds) than move within the same neighbourhood (14% of 5–14 year olds and 12% of 15–24 year olds).

This chapter uses data from *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC) to provide the first examination of Australian national longitudinal data focusing on the experiences of children and their families who live in disadvantaged neighbourhoods. First, the social and demographic characteristics of residents in LSAC neighbourhoods are described. Second, the persistence of neighbourhood disadvantage is examined as well as describing children and their families who transition out of neighbourhood disadvantage. Finally, the chapter examines whether the transitions into and out of neighbourhood disadvantage can be explained by families moving between neighbourhoods or by changes in the socio-economic composition of neighbourhoods over time.

8.1 Neighbourhood socio-demographic characteristics

This section provides a profile of the social and demographic characteristics of residents in the neighbourhoods in which the study children and families live. The profile uses information about the local area linked from the ABS Census of Population and Housing.¹ Table 8.1 presents socio-demographic information about the proportion of people who have completed Year 12, employed people, households that have incomes greater than \$1,000 per week, and Aboriginal or Torres Strait Islander people living in the local area. The main indicator of neighbourhood socio-economic status used in this chapter is the Index of Advantage/Disadvantage of the Socio-Economic Indexes for Areas (SEIFA), which is the weighted average of a composite of 31 variables such as income, unemployment, occupation and education (Trewin, 2004). Areas are ranked and the average area has a score of 1,000, with 70% of areas having scores ranging from 900 to 1,100. Lower scores indicate more disadvantage and less advantage, and higher scores indicate the reverse. Indicators for areas that were in the bottom 25% (scores less than 924) and in the top 25% of the SEIFA distribution (greater than 1,053) were also generated.

Table 8.1 shows that for both LSAC cohorts, the average neighbourhood socio-economic status of local areas improved over the three waves, but only marginally. However, for both cohorts, the proportion of children living in the 25% most disadvantaged areas decreased from 15% to 12–13%, while the proportion of children living in the 25% most advantaged neighbourhoods was fairly stable. Consistent with the view that the socio-economic status of the neighbourhoods in which the study children lived improved over time, the percentage of employed adults increased by about 2% in both cohorts and the percentage of people who had completed Year 12 increased by about 6% in the B cohort and by about 3% in the K cohort. Although inflation increases the cost of living and therefore reduces some of the benefits of higher incomes in later years, by Wave 3 far fewer households were living on incomes that were less than \$1,000 per week. For the B cohort, the proportion of households with incomes of less than \$1,000 per week reduced from 52% to 32%, while for the K cohort the reduction was still substantial but not as pronounced (42% to 33%).

Table 8.1 Neighbourhood social and demographic variables, B and K cohorts, Waves 1–3

	Wave 1	Wave 2	Wave 3
B Cohort			
SEIFA Index of Advantage/Disadvantage	1,004.58	1,004.06	1,007.56
		%	
Families living in bottom 25% of SEIFA Index areas	14.6	12.5	12.3
Families living in top 25% of SEIFA Index areas	26.3	25.6	26.2
Aboriginal or Torres Strait Islander people	1.9	2.4	2.4
People who have completed Year 12	40.5	45.1	47.2
Employed adults	59.6	61.4	62.5
Households with incomes of < \$1,000 per week	52.4	38.6	32.4
K Cohort			
SEIFA Index of Advantage/Disadvantage	1,002.32	1,006.08	1,005.40
		%	
Families living in bottom 25% of SEIFA Index areas	14.8	12.0	12.6
Families living in top 25% of SEIFA Index areas	24.2	25.8	25.3
Aboriginal or Torres Strait Islander people	2.3	2.4	2.5
People who have completed Year 12	43.7	45.3	46.5
Employed adults	60.6	61.6	62.4
Households with incomes of < \$1,000 per week	41.9	38.3	32.8

¹ Census data are either linked at the Statistical Local Area (SLA) level or, where this isn't available, the study child's postcode. One estimate is provided for each time point representing a linear interpolation of the data at the Censuses either side of the Census collection period. Although SLAs are the size of local government areas, in many instances they are preferable to collection districts (CDs, which more closely approximate a local neighbourhood) because of their stability over time. SLAs are relatively stable between Censuses, and therefore comparisons of Socio-Economic Indexes for Areas (SEIFA) values over time are more valid than for CDs or postcodes, where there may be substantial changes in their definition over the same period.

8.2 Children's experiences over time of living in disadvantaged neighbourhoods

Persistence of living in disadvantaged neighbourhoods

Table 8.2 shows the percentage of children in the B and K cohorts living in advantaged and disadvantaged neighbourhoods over the three LSAC waves. There is substantial mobility into and out of neighbourhood disadvantage across both cohorts. One in five children were living in a disadvantaged neighbourhood in at least one wave (22% of children in the B cohort and 20% of children in the K cohort). For the B cohort, half of these children (11%) were living in a disadvantaged neighbourhood in only one wave and about a quarter (6%) were living in a disadvantaged neighbourhood for all three waves. For the K cohort, a smaller percentage of children were living in a disadvantaged neighbourhood for one wave (8%) than in the B cohort, but a larger proportion lived in a disadvantaged neighbourhood in all three waves (8%).

Table 8.2 Children living in advantaged and disadvantaged neighbourhoods, B and K cohorts, Waves 1–3

	B cohort	K cohort
	%	
Never in bottom 25% of SEIFA Index areas	78.5	80.5
Lived in bottom 25% for one wave	10.5	7.7
Lived in bottom 25% for two waves	5.3	4.2
Lived in bottom 25% for three waves	5.7	7.8
Total	100.0	100.0

Notes: Percentages use population survey weights that account for sample attrition and weight to the general population of 0–1 year olds and 4–5 year olds in 2004. Percentages may not total 100% due to rounding.

Transitioning into and out of living in a disadvantaged neighbourhood

This subsection documents the transitions into and out of living in a disadvantaged neighbourhood between the main waves of data collection. The term “transition” denotes any change in neighbourhood status, both into and out of living in a disadvantaged neighbourhood. In this context, a transition could be due to residential mobility or to changes in the socio-economic nature of the neighbourhood due to economic decline or gentrification.

Table 8.3 documents the transitions into and out of living in a disadvantaged neighbourhood between Waves 1 and 2. In Wave 1, 15% of children in the B cohort were living in a disadvantaged neighbourhood but by Wave 2, 52% of these children (8% of all study children) were no longer living in a disadvantaged neighbourhood. Of the 85% of children who were not living in a disadvantaged neighbourhood at Wave 1, 6% of these children (6% of all study children) were living in a disadvantaged neighbourhood by Wave 2. By Wave 2, fewer children were living in a disadvantaged neighbourhood (13%) than in Wave 1.

Table 8.3 Transitions into and out of living in a disadvantaged neighbourhood, B cohort, Wave 1 to Wave 2

		Wave 2		Totals for Wave 1	Proportion in row who changed status
		Not in neighbourhood disadvantage	Neighbourhood disadvantage		
		%		%	%
Wave 1	Neighbourhood disadvantage	7.7	7.0	14.7	52.3
	Not in neighbourhood disadvantage	79.8	5.5	85.3	6.4
Totals for Wave 2		87.5	12.5	100.0	

Note: $n = 4,606$.

There were fewer transitions into and out of living in a disadvantaged neighbourhood between Waves 2 and 3 (Table 8.4) than in Waves 1 and 2 for the B cohort children and their families. There was a far smaller proportion of children (18%; 2% of all study children) and their families who were living in a disadvantaged neighbourhood in Wave 2 who transitioned out of living in neighbourhood disadvantage. Only 3% of children (3% of all study children) and their families transitioned from living in a non-disadvantaged neighbourhood into a disadvantaged neighbourhood.

Table 8.4 Transitions into and out of living in a disadvantaged neighbourhood, B cohort, Wave 2 to Wave 3

		Wave 3		Totals for Wave 2	Proportion in row who changed status
		Not in neighbourhood disadvantage	Neighbourhood disadvantage		
		%	%		
Wave 2	Neighbourhood disadvantage	2.1	9.4	11.5	18.3
	Not in neighbourhood disadvantage	85.6	2.9	88.5	3.3
Totals for Wave 3		87.7	12.3	100.0	

Note: $n = 4,386$.

Overall, there were fewer children transitioning into and out of living in a disadvantaged neighbourhood between Waves 1 and 2 and between Waves 2 and 3 in the K cohort than in the B cohort. Table 8.5 shows that, of the 14% of children living in a disadvantaged neighbourhood in Wave 1, some 35% (5% of all study children) transitioned out of living in a disadvantaged neighbourhood at Wave 2. Three per cent of those living in an advantaged neighbourhood (3% of all study children) transitioned into living in a disadvantaged neighbourhood from Wave 1 to Wave 2.

Table 8.5 Transitions into and out of living in a disadvantaged neighbourhood, K cohort, Wave 1 to Wave 2

		Wave 2		Totals for Wave 1	Proportion in row who changed status
		Not in neighbourhood disadvantage	Neighbourhood disadvantage		
		%	%		
Wave 1	Neighbourhood disadvantage	5.1	9.3	14.4	35.4
	Not in neighbourhood disadvantage	82.9	2.7	85.6	3.1
Totals for Wave 2		88.0	12.0	100.0	

Note: $n = 4,464$.

As seen in Table 8.6, there were very few transitions out of living in a disadvantaged neighbourhood between Waves 2 and 3 in the K cohort. Less than 2% of the total sample of children who were living in a disadvantaged neighbourhood in Wave 2 transitioned out of disadvantage at Wave 3. However, more than 2% of children who had not been living in neighbourhood disadvantage in Wave 2 transitioned into living in a disadvantaged neighbourhood in Wave 3. This meant that there was a small net increase in the percentage of children living in a disadvantaged neighbourhood between Waves 2 and 3.

Overall, the findings on the transitions into and out of living in disadvantaged neighbourhoods suggest that there were higher rates of transition out of disadvantaged neighbourhoods for children in the first four years of life (the B cohort) than there were for older children (the K cohort). In the next section, the role of neighbourhood socio-economic change and residential mobility in these transitions are explored.

Table 8.6 Transitions into and out of living in a disadvantaged neighbourhood, K cohort, Wave 2 to Wave 3

		Wave 3		Totals for Wave 2	Proportion in row who changed status
		Not in neighbourhood disadvantage	Neighbourhood disadvantage		
		%	%	%	%
Wave 2	Neighbourhood disadvantage	1.5	10.0	11.5	13.0
	Not in neighbourhood disadvantage	85.8	2.6	88.5	2.9
Totals for Wave 3		87.4	12.6	100.0	

Note: $n = 4331$.

8.3 Changes in neighbourhood socio-economic status over the waves: Changes in the neighbourhood or residential mobility?

This section examines transitions into and out of living in a disadvantaged neighbourhood and the extent to which these transitions are due to residential mobility or to neighbourhood socio-economic change.

Self-reported information in Waves 2 and 3 was used to examine residential mobility. If parents indicated they had moved since the last interview and if their most recent move was not “within this town or suburb”, then they were defined as having moved neighbourhoods.

Table 8.7 outlines the neighbourhood mobility of children in the study, and shows the percentages who remained in the same neighbourhood at all three waves (“stayers”), and the percentage who moved between two waves or all waves (“movers”). There are two points to note. Firstly, there were higher rates of neighbourhood mobility among LSAC children than those reported in the Census.² One in three children and their families moved neighbourhoods over approximately a 4-year period. Second, of those children and their families that did move neighbourhoods, the majority moved between all waves. These data suggest that there are high rates of neighbourhood mobility, which could therefore play a major role in whether children transition into and out of disadvantaged neighbourhoods.

Table 8.7 Mobility out of neighbourhood of residence in the previous wave, B and K cohorts, Waves 1–3

	B cohort	K cohort
	%	%
In same neighbourhood at all three waves	65.7	58.3
Moved between Waves 1 and 2 only	4.1	4.2
Moved between Waves 2 and 3 only	10.6	6.0
Moved between all waves	19.6	31.6
Total	100.0	100.0

Note: Percentages may not total 100% due to rounding.

This section next examines the extent to which neighbourhood mobility and neighbourhood change were associated with children and their families’ transitions into and out of living in disadvantaged neighbourhoods. The top panel of Table 8.8 shows that for B cohort children and their families living in a disadvantaged neighbourhood in Wave 1, a higher proportion of movers (70%) than

² Note that the 2006 Census data on residential mobility is only available for children aged 5 years and older.

stayers (49%) were not living in a disadvantaged neighbourhood in Wave 2. Movers who were not living in disadvantaged neighbourhoods in Wave 1 were more likely than stayers to live in a disadvantaged neighbourhood in Wave 2, but this was a very small proportion of the total number of movers (8%). It did not offset the small net gain (less than 1%) of children moving out of disadvantaged neighbourhoods due to mobility.

A similar pattern was evident for neighbourhood transitions between Waves 2 and 3 for the B cohort (bottom panel of Table 8.8). Again, a greater proportion of movers than stayers living in disadvantaged neighbourhoods in the previous wave (Wave 2) were not living in a disadvantaged neighbourhood in the later wave (Wave 3). While the proportion of movers living in disadvantaged neighbourhoods at Wave 2 who moved out of a disadvantaged neighbourhood at Wave 3 was smaller than for the transition between Waves 1 and 2, the proportion of stayers living in a disadvantaged neighbourhood whose neighbourhood status changed between Waves 2 and 3 was much smaller (8% compared to 5%). Again, movers who were not living in a disadvantaged neighbourhood in Wave 2 transitioned into a disadvantaged neighbourhood at a higher rate than stayers (5% compared to 2%), but this did not offset the small net gain from mobility out of disadvantaged neighbourhoods (1.6% minus 1.3%).

Although there is evidence that neighbourhood mobility is associated with a greater rate of transitions out of neighbourhood disadvantage, a far higher percentage of the total number of children and their families transitioned out of disadvantaged neighbourhoods between Waves 1 and 2 if they stayed in the same neighbourhood (5% compared to 2%). There were also 3% of children and their families who stayed in the same neighbourhood between Waves 1 and 2 but whose neighbourhood had become disadvantaged at Wave 2. This pattern of results was not evident for the Waves 2 and 3 transitions for the B cohort.

Table 8.8 Transitions into and out of living in a disadvantaged neighbourhood between waves and neighbourhood mobility, B cohort, Waves 1–3

	Transitions from Wave 1 to 2	Mobility	Wave 2		Totals for Wave 1	Proportion in row who changed status
			Not in disadvantaged neighbourhood	Disadvantaged neighbourhood		
			%	%	%	%
Wave 1	Disadvantaged neighbourhood	Stayer	5.4	5.7	11.1	48.6
		Mover	2.3	1.0	3.3	69.7
	Not in disadvantaged neighbourhood	Stayer	61.5	3.3	64.8	5.1
		Mover	19.0	1.7	20.7	8.2
	Transitions from Wave 2 to 3	Mobility	Wave 3		Totals for Wave 2	Proportion in row who changed status
			Not in disadvantaged neighbourhood	Disadvantaged neighbourhood		
			%	%	%	%
Wave 2	Disadvantaged neighbourhood	Stayer	0.7	7.9	8.6	8.1
		Mover	1.6	2.1	3.7	4.3
	Not in disadvantaged neighbourhood	Stayer	61.6	1.0	62.6	1.6
		Mover	26.1	1.3	27.4	4.7

The pattern of results for residential mobility for children and their families in the K cohort was very similar to the B cohort (Table 8.9). A larger proportion of children and families who were originally living in a disadvantaged neighbourhood and then moved between waves were not living in disadvantaged neighbourhoods in the subsequent wave, compared to stayers who were living in a disadvantaged neighbourhood. Similarly, the proportion of movers who were living in a disadvantaged neighbourhood who moved to a disadvantaged neighbourhood in the subsequent wave was higher than for stayers. Two points are worth noting. Firstly, for the K cohort, the transition from Wave 2 to Wave 3 marks the first time when there was not a greater percentage of families who moved *out of* disadvantaged neighbourhoods than *into* disadvantaged neighbourhoods (both 1.2%). Secondly, rates of neighbourhood mobility increase as the children get older (see Figure 8.1), but transitions out of disadvantaged neighbourhoods decrease.

Transitions out of neighbourhood disadvantage due to neighbourhood change were not as common for the K cohort. There were a smaller percentage of children and their families who were living in a disadvantaged neighbourhood in Wave 1 who stayed in the same neighbourhood but were not living in a disadvantaged neighbourhood in Wave 2 (3.1%). Moreover, there was little difference between stayers and movers in the percentage of children and their families who were not living in a disadvantaged neighbourhood in Wave 1 but were living in a neighbourhood disadvantage in Wave 2.

Table 8.9 Transitions into and out of living in a disadvantaged neighbourhood between waves and neighbourhood mobility, K cohort, Waves 1–3

Transitions from Wave 1 to 2		Mobility	Wave 2		Totals for Wave 1	Proportion in row who changed status
			Not in disadvantaged neighbourhood	Disadvantaged neighbourhood		
			%	%	%	
Wave 1	Disadvantaged neighbourhood	Stayer	3.1	5.9	9.0	34.4
		Mover	2.0	2.8	4.8	41.6
	Not in disadvantaged neighbourhood	Stayer	53.0	1.4	54.4	2.6
		Mover	30.5	1.3	31.8	4.1
Transitions from Wave 2 to 3		Mobility	Wave 3		Totals for Wave 2	Proportion in row who changed status
			Not in disadvantaged neighbourhood	Disadvantaged neighbourhood		
			%	%	%	
Wave 2	Disadvantaged neighbourhood	Stayer	0.5	7.7	8.2	6.1
		Mover	1.2	3.2	4.4	27.3
	Not in disadvantaged neighbourhood	Stayer	57.8	1.0	58.8	1.7
		Mover	32.9	1.2	34.1	3.5

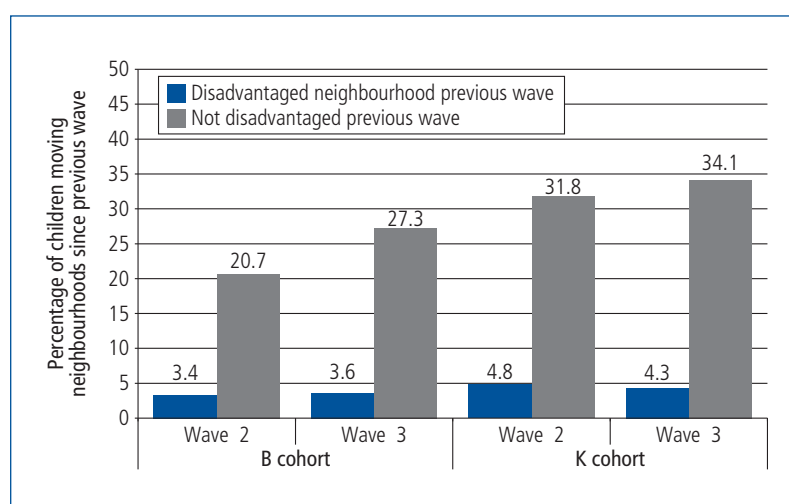


Figure 8.1 Between-wave neighbourhood mobility, by neighbourhood disadvantage in the previous wave, B and K cohorts, Waves 1–3

8.4 Summary

At each wave of LSAC, fewer than one in ten children were growing up in a disadvantaged neighbourhood, as defined by the bottom 25% of the SEIFA Index of Advantage/Disadvantage. Younger children and their families transitioned out of living in a disadvantaged neighbourhood at higher rates in the first three years of children's lives than when the children were 8–9 years of age. The higher rate of transitions out of neighbourhood disadvantage were associated with

residential mobility rather than neighbourhood change early on, but not so much at later waves. Neighbourhood mobility played a larger role for younger children and their families moving out of disadvantaged neighbourhoods early in life, but this gradually declined as children grew older. Even though rates of neighbourhood mobility increased as children grew older, there was still much less mobility out of disadvantaged areas. The role of neighbourhood change in moving children and their families out of disadvantaged neighbourhoods was even more pronounced in the early years of a child's life, but by age 8–9 this played only a small role in changing children's life circumstances. The early years of children's lives being more important for transitions out of neighbourhood was not due to methodological biases, as the weighting scheme in the study accounted for sample attrition.

Further research needs to document the types of families that transition into and out of neighbourhood disadvantage, as there may be particular families or circumstances (such as parental relationship breakdown) in which transitions into a disadvantaged neighbourhood may be more common (South, Crowder, & Trent, 1998). The high rate of neighbourhood mobility is another issue worthy of further investigation, as residential mobility has been found to be associated with poorer developmental outcomes for children (Simpson & Fowler, 1994; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993).

Although there appear to be fewer opportunities for families to move out of disadvantaged neighbourhoods over time, the number and persistence of children living in disadvantaged neighbourhoods is small by international standards. For example, in the United States, 25% of Caucasian children and 72% of African-American children will remain in a poor neighbourhood for 10 or more consecutive years (Quillian, 2003). In part, this may reflect that the SEIFA indexes are relative rankings of areas, so they do not change much over time, even if a more absolute measure of neighbourhood disadvantage does change substantially (e.g., local unemployment rates). Therefore, further research examining transitions using absolute measures of disadvantage is warranted.³ It is also important to note that the intensification of neighbourhood disadvantage may also be beyond the control of families. For instance, the change in the mix of industries in areas and therefore the availability of work in particular industries in these areas or the availability of jobs in particular areas (sometimes referred to as spatial mismatch) are beyond the control of families but can effect neighbourhood disadvantage (see Hunter, 2006). Therefore, further research on the dynamics of neighbourhood change and children's development is important, particularly for examining whether persistent disadvantage has a deleterious affect on Australian children's development.

8.5 Further reading

Edwards, B. (2005). Does it take a village? An investigation of neighbourhood effects on Australian children's development. *Family Matters*, 72, 36–43.

Edwards, B. (2006). Views of the village: Parents' perceptions of their neighbourhoods. *Family Matters*, 74, 26–33.

Edwards, B., & Bromfield, L. (2009). Neighborhood influences on young children's conduct problems and pro-social behavior: Evidence from an Australian national sample. *Children and Youth Services Review*, 31(3), 317–324.

8.6 References

- Australian Bureau of Statistics. (2010). *2006 Census of Population and Housing*. Canberra: ABS.
- Australian Government. (2010). *Social inclusion priorities*. Canberra: Australian Government. Retrieved from <www.socialinclusion.gov.au/SIagenda/Priorities/Pages/default.aspx>.
- Edwards, B. (2005). Does it take a village? An investigation of neighbourhood effects on Australian children's development. *Family Matters*, 72, 36–43.
- Edwards, B. (2006). Views of the village: Parents' perceptions of their neighbourhoods. *Family Matters*, 74, 26–33.
- Edwards, B., & Bromfield, L. M., (2009). Neighborhood influences on young children's conduct problems and pro-social behavior: Evidence from an Australian national sample. *Children and Youth Services Review*, 31, 317–324.
- Edwards, B., Wise, S., Gray, M., Hayes, A., Katz, I., Misson, S., Patulny, R., & Muir, K., (2009). *Stronger Families in Australia study: The impact of Communities for Children* (Occasional Paper No. 25). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

³ The results in Table 8.1, however, suggest that there has been an overall trend towards advantage, with increased employment rates and fewer households with incomes of less than \$1,000 per week.

- Hunter, B. (2003). Trends in neighbourhood inequality of Australian, Canadian and United States of America cities since the 1970s. *Australian Economic History Review*, 43(1), 22–44.
- Hunter, B. (2006). The “Peter Pan” of Australian economic policy research. *The Economic Record*, 82, 127–137.
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighbourhoods they live in: The effects of neighbourhood residence on child and adolescent outcomes. *Psychological Bulletin*, 126(2), 309–337.
- Muir, K., Katz, I., Purcal, C., Patulny, R., Flaxman, S., Abello, D. et al. (2009). *National evaluation (2004–2008) of the Stronger Families and Communities Strategy 2004–2009* (Occasional Paper No. 24). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.
- Orr, L., Feins, J. D., Jacob, R., Beecroft, E., Sanbonmatsu, L., Katz, L. F. et al. (2003). *Moving to opportunity: Interim impacts evaluation*. Washington, DC: Office of Policy Development and Research, US Department of Housing and Urban Development.
- Quillian, L. (2003). How long are exposures to poor neighbourhoods? The long-term dynamics of entry and exit from poor neighbourhoods. *Population Research and Policy Review*, 22, 221–249.
- Sampson, R. J., Morenoff, J. D., & Earls, F. (1999). Beyond social capital: Spatial dynamics of collective efficacy for children. *American Sociological Review*, 64, 633–60.
- Sampson, R. J., Morenoff, J. D. & Gannon-Rowley, T. (2002). Assessing neighbourhood effects: Social processes and new directions in research. *Annual Review of Sociology*, 28, 443–478.
- Sampson, R. J., Sharkey, P., & Raudenbush, S. W. (2008). Durable effects of concentrated disadvantage on verbal ability among African-American children. *Proceedings of the National Academy of Sciences*, 105, 845–853.
- Simpson, G. A., & Fowler, M. G. (1994). Geographic mobility and children’s emotional/behavioral adjustment and school functioning. *Pediatrics*, 93(2), 303–309.
- South, S. J., Crowder, K. D., & Trent, K. (1998). Children’s residential mobility and neighbourhood environment following parental divorce and remarriage. *Social Forces*, 77(2), 667–693.
- Timberlake, J. M. (2007). Racial and ethnic inequality in the duration of children’s exposure to neighborhood poverty and affluence. *Social Problems*, 54, 319–342.
- Trewin, D. (2004). *Census of Population and Housing: Socio-Economic Indexes For Area’s (SEIFA) Australia 2001* (Technical Paper Cat. No. 2039.0.55.001). Canberra: Australian Bureau of Statistics.
- Wood, D., Halfon, N., Scarlata, D., Newacheck, P., & Nessim, S. (1993). Impact of family relocation on children’s growth, development, school function, and behavior. *Journal of the American Medical Association*, 270(11), 1334–1338.

How young children are faring: Behaviour problems and competencies

9

Diana Smart

Australian Institute of Family Studies

A major aim of *Growing up in Australia: The Longitudinal Study of Australian Children* (LSAC) is to follow children's development over time, looking particularly at their social and emotional wellbeing. Social and emotional wellbeing is assessed in two ways: by the presence of behavioural or emotional problems, and by the level of competencies and social skills exhibited by children.

Children's behaviour problems are generally classified into two types (Campbell, 2002):

- *externalising* behaviours that are expressed outwardly and often impact upon others (e.g., overactivity, temper tantrums, fighting, destructiveness and disobedience); and
- *internalising* behaviours that are inwardly expressed and are a sign of distress (e.g., worrying, fearfulness, social withdrawal and unhappiness).

Externalising behaviours can be further differentiated into aggressive, acting-out behaviours and hyperactive, distractible behaviours, although research shows that these two subtypes frequently co-occur (Connor, Steeber, & McBurnett, 2010). Similarly, internalising problems are often differentiated into anxiety and depression, particularly among older children and adolescents, and also frequently occur together (Axelson & Birmaher, 2001; Brady & Kendall, 1992).

Some problem behaviours are quite common among young children. Koot and colleagues (1993), for example, reported that approximately 25% of the 469 Dutch 2–3 year olds in their representative community sample were rated by parents as often defiant or unable to sit still. Similarly, 41% of the 377 Swedish 4-year-olds in Hagekull and Bohlin's (1992) study were frequently disobedient, and 29% were often restless. In Canada, 66% of 4–5 year olds sometimes or more often argued a lot and/or were disobedient at home, while around 40% found it hard to concentrate (Thomas, Byrne, Offord, & Boyle, 1991). In the USA, Egger and Angold (2006) found that 12% to 48% of 2–5 year olds were often easily distracted, and between 5% and 18% were often fidgety or squirmy in the studies they reviewed.

However, it is much less common for children to show multiple problems and this is often seen as indicative of more serious difficulties. For example, 14% of Australian 4–12 year olds were found to have multiple behaviour problems that placed them in the clinical range (Sawyer et al., 2000). Children's behaviour problems can be very persistent (Biederman et al., 1996; Pierce, Ewing, & Campbell, 1999) and can place them at risk of problematic developmental pathways (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; Tolan, Gorman-Smith, & Loeber, 2000).

Social competence has been described as "socially acceptable, learned ways of behaving that enable a person to interact effectively with other people" (Gresham & Elliott 1990). Social competence is a valued individual attribute and has been linked to positive outcomes among children; for example, their academic achievement (Elias & Haynes, 2008). Some examples of socially competent behaviours are sharing, helping, cooperating, sensitively interacting with others, being empathic, and being able to compromise when needed. These behaviours form the basis of competency and comprise the major measures of positive development used by LSAC to date.

This chapter uses weighted data from Waves 2 and 3 for the B cohort to look at the prevalence of particular problem behaviours (including multiple behaviour problems) and socially competent functioning among Australian children aged 2–3 and 4–5 years. For problem behaviours and social competence, differences between boys and girls, children from differing socio-economic

backgrounds, with differing numbers of siblings, and from metropolitan or regional localities are also explored. (See Chapter 2 for details about these groups.)

Some limitations to these data should be noted. First, data based on single items are less reliable than data based on responses to several items (composite scores). Many of the items here describe behaviours that represent a phase a child may pass through, or a behaviour that on its own does not indicate a problem. When reporting on children's broad socio-emotional development, it is the combination of a number of behaviours clustered together (the composite scores) that are generally taken to indicate possible problems. In addition, there is always some error of measurement, so the proportions here should be viewed as approximations only. Nevertheless, it is important to know which behaviours are more common (and therefore more normative), and which are rarer (and therefore perhaps more concerning). Examination of differences in the prevalence of individual behaviours also provides insights into differences in specific behaviours between different groups of children (e.g., between boys and girls).

9.1 Prevalence of behaviour problems at 2–3 years

The Brief Infant–Toddler Socio-Emotional Adjustment scale (BITSEA)¹ (Briggs-Gowan & Carter, 2006), which assesses early childhood problem behaviours and competencies, was completed by the primary parent (Parent 1) when children were aged 2–3 years in Wave 2.

The LSAC version of the BITSEA includes 23 items assessing problem behaviours and requires parents to rate how often their child had shown the behaviours in the past month, using a three-point scale (0 = “Not true/Rarely”, 1 = “Somewhat true/Sometimes”, 2 = “Very true/Often”). As the great majority of primary parents were mothers (more than 96% at all waves), these analyses are restricted to mothers' reports.² The data are based on the reports of approximately 4,400 mothers.³

A *total BITSEA behaviour problems score* is computed, by summing the ratings made over all the behaviour problem items. This score can provide an estimate of the number of children who have multiple problems. The possible range of scores on this composite is 0 to 46. The average for the total LSAC cohort was 7.51 (*SE* 0.096), which is towards the lower end of the range, suggesting that children were usually not problem-free and tended to show some, but not a large number of, behaviour problems.

To address the question of which problem behaviours are most common among young Australian children, the incidence of differing behaviours is next examined, using the BITSEA (2006) typology of *externalising*, *internalising*, *dysregulation* and other types of behaviours. The behaviours are ordered from the most to the least frequent.

Looking first at externalising behaviours (first section of Table 9.1), the majority of children (56%) were reported as “sometimes” or “often” restless and unable to sit still. However, only a small number of children (10%) “often” showed this behaviour. Signs of aggression (e.g., hitting other children or parents, being destructive, or deliberately trying to hurt parents) were evident among 20–25% of 2–3 year olds, but “often” occurred among only 1–2% of children. Around 15% of children were accident-prone to the extent that parents needed to watch them closely.

Turning now to internalising problems (second section of Table 9.1), approximately half had shown fear of certain places, animals or things, and a similar number had shown signs of distress when their parent was leaving them. However, this was “often true” of only 6% and 10% for these behaviours respectively. Between 15% and 20% of children had been nervous or worried in the past month, but less than 2% were “often” this way. Few (7% of children) seemed to have less fun than other children, and only 4% had been very unhappy, sad, depressed or withdrawn.

Dysregulation problems reflect negativity and low adaptability (third section of Table 9.1). Approximately 40–50% of children were reported to have eating (refusing to eat) or sleeping problems, with close to 10% “often” having difficulties with falling or staying asleep. Other common behaviours were: being reluctant to touch things because of how they feel (45%) and having

1 The BITSEA is copyrighted. The publisher's permission is needed for use of the scale.

2 Parent 2 respondents completed only a sub-set of BITSEA items; hence, their responses are not included here.

3 Response rates varied slightly across the separate BITSEA items.

trouble adjusting to change (41%). However, only around 4–5% “often” showed these behaviours. Approximately one-third of children became very upset at least “sometimes”, while over one quarter “sometimes” or “often” cried or threw a tantrum until they were exhausted.

The BITSEA also includes some behaviours that do not fall under the above groupings, but are troublesome for parents and carers (fourth section of Table 9.1). A common behaviour of this type was running away in a public place, with 38% of the 2–3 year olds reported to have done so at least “sometimes” in the past month. However, only a small percentage (9%) had run away “often”. Additionally, approximately one-third “sometimes” or more often did not react when hurt.

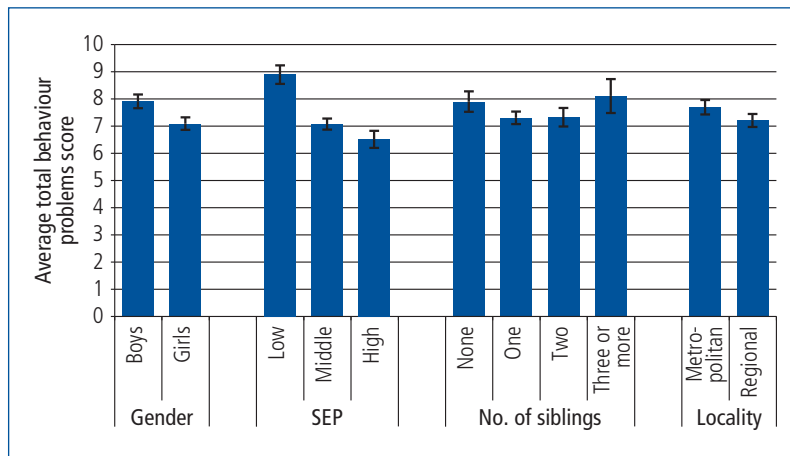
Table 9.1 Percentage of children showing differing types of behaviour problems at 2–3 years, BITSEA scale (mothers’ reports), B cohort, Wave 2

	Not true/ Rarely	Somewhat true/ Sometimes	Very true/ Often	Total
	%			
Externalising types of problems				
Is restless and can't sit still	44.4	45.7	9.9	100.0
Hits, shoves, kicks or bites children (not including brother/sister)	75.3	22.9	1.9	100.0
Hits, bites or kicks you (or other parent)	78.3	20.5	1.2	100.0
Is destructive, breaks or ruins things on purpose	79.5	18.4	2.2	100.0
Gets hurt so often that you can't take your eyes off him/her	84.0	14.7	1.3	100.0
Purposely tries to hurt you (or other parent)	89.7	9.5	0.9	100.0
Internalising types of problems				
Is afraid of certain places, animals or things	50.5	43.9	5.5	100.0
Cries or hangs onto you when you try to leave	50.5	39.4	10.1	100.0
Seems nervous, tense or fearful	79.5	19.0	1.5	100.0
Worries a lot or is very serious	84.7	13.6	1.6	100.0
Has less fun than other children	92.9	5.0	2.2	100.0
Seems very unhappy, sad, depressed or withdrawn	95.8	3.5	0.6	100.0
Dysregulation				
Refuses to eat	50.6	44.3	5.2	100.0
Won't touch some objects because of how they feel	56.5	38.7	4.8	100.0
Has trouble adjusting to changes	58.9	37.0	4.1	100.0
Wakes up at night and needs help to fall asleep again	61.6	27.8	10.6	100.0
Often gets very upset	62.0	34.4	3.7	100.0
Has trouble falling asleep or staying asleep	63.2	28.2	8.6	100.0
Cries or tantrums until he/she is exhausted	71.8	23.9	4.3	100.0
Gags or chokes on food	91.3	7.3	1.4	100.0
Other types of problems				
Runs away in public places	52.7	38.3	9.1	100.0
Does not react when hurt	65.0	30.9	4.1	100.0
When upset, gets very still, freezes or doesn't move	89.6	9.2	1.2	100.0

Note: Percentages may not total 100% due to rounding.

Figure 9.1 compares different groups of children on the total behaviour problem score. Chi-square analyses (using an alpha significance of .01 because of the number of tests conducted) were used to compare groups on individual items. Analysis of variance (ANOVA) was used to compare groups on total scores.⁴ Figures showing the mean scores for the sub-groups of children being compared are included, with the 95% confidence intervals (CIs), shown by the “I” bars at the top of each

⁴ These analyses take into account the clusters and strata used in the study design using Stata® svy commands (see Chapter 1), so the design degrees of freedom are reported here.



Note: SEP = Family socio-economic position.

Figure 9.1 Comparison of 2–3 year old subgroups on total behaviour problems, BITSEA scale (mothers' reports), B cohort, Wave 2

column in the graph. Where confidence intervals for the groups being compared do not overlap, this indicates that the values are significantly different. As an example, on the left of Figure 9.1 (comparison of boys and girls) the CI for boys does not overlap with the CI for girls, indicating that there were significant gender differences.

Differences between 2–3 year old boys and girls on behaviour problems

Boys tended to display a higher number of behaviour problems overall than girls when scores on all the BITSEA behaviour problem items were summed.⁵ Figure 9.1 depicts this gender difference.

Looking at differences between boys and girls on specific types of problem behaviours, differences were found on all six externalising items, with approximately 10% more boys than girls showing such problems.⁶ Differences were most marked on destructiveness and aggressiveness. For example, 26% of boys were “sometimes” or “often” destructive, compared with 15% of girls; while 29% of boys had hit, shoved or pushed other children (not siblings) “sometimes” or “often”, compared with 20% of girls.

There were differences between boys and girls on one of the six internalising items,⁷ with more girls than boys being afraid of certain places, animals or things. There were gender differences on two of the eight dysregulation items (trouble adjusting to changes, refusing to eat), with these behaviours being more common among boys.⁸ Of the “Other types of problems”, boys were also more often reported to run away in public places and to not react when hurt.⁹

Differences between 2–3 year old children from differing socio-economic backgrounds on behaviour problems

Children aged 2–3 years from differing socio-economic backgrounds were compared on the total number of behaviour problems overall and the specific types of behaviour problems exhibited. For these comparisons, children in the three categories derived from the family socio-economic position scale were compared (lowest 25%, middle 50% and highest 25%).

5 ANOVA $F(1,271) = 28.86, p < .0001$.

6 Is restless, can't sit still: $\chi^2(2) = 35.9, p < .0001$; Hits, shoves, kicks or bites other children (not siblings): $\chi^2(2) = 53.8, p < .0001$; Hits, bites or kicks you (or other parent): $\chi^2(2) = 57.1, p < .0001$; Is destructive, breaks or ruins things on purpose: $\chi^2(2) = 73.2, p < .0001$; Gets hurt so often that you can't take your eyes off him/her: $\chi^2(2) = 22.3, p < .0004$; Purposely tries to hurt you (or other parent): $\chi^2(2) = 37.5, p < .0001$.

7 Is afraid of certain places, animals or things: $\chi^2(2) = 16.7, p < .0007$.

8 Has trouble adjusting to changes: $\chi^2(2) = 10.8, p < .0098$; Refuses to eat: $\chi^2(2) = 16.7, p < .0020$.

9 Runs away in public places: $\chi^2(2) = 50.2, p < .0001$; Does not react when hurt: $\chi^2(2) = 19.6, p < .0004$.

Using ANOVA, significant differences¹⁰ were found in the total number of behaviour problems exhibited by children in the three socio-economic position groups, as shown in Figure 9.1. Children in the lowest 25% had significantly higher levels of behaviour problems than children in the other two groups, which also significantly differed.

In terms of the particular behaviours on which differences were found, there were significant differences on 19 of the 23 behaviours measured.¹¹ These consistently showed that children from families in the lowest 25% on socio-economic position had the highest rates of problem behaviours, while those whose families were in the top 25% generally showed the lowest rates (although they were sometimes similar to the middle 50%). Differences were found on all facets of externalising behaviours, on four of the six aspects of internalising behaviours, on six of the eight dysregulation items and all three other types of problem behaviours.

The largest disparities between groups were found on the following behaviours:

- “Does not react when hurt”—a difference of 20% between children in the highest 25% and lowest 25% groups;
- “Won’t touch some objects because of how they feel”—a difference of 15% between these two groups;
- “Restless, can’t sit still” and “Cries or hangs onto you when you try to leave”—a difference of 13%; and
- “Hits, shoves or bites other children (not including brothers or sisters)” —a difference of 11%.

Differences between 2–3 year old children on behaviour problems according to the number of siblings in the family

Rates of behaviour problems among children with differing numbers of siblings are next examined. For these comparisons, four groups were formed, which compared children with no siblings, one sibling, two siblings, and three or more siblings.

As Figure 9.1 indicates, children who had one sibling were found to have significantly fewer behaviour problems overall than those with zero, or three or more, siblings. This finding is based on an ANOVA test of group differences.¹²

While there were significant differences on the total number of behaviour problems (i.e., the proportions showing multiple problems differed), when specific problem behaviours were examined, few significant differences were found (on six of the 23 behaviours). These were:

- three of the six externalising items—restlessness; hitting, biting or kicking a parent; attempting to hurt a parent;¹³
- one internalising item—showing distress when a parent tries to leave the child;¹⁴ and
- two dysregulation items—refusing to touch certain things because of how they feel and trouble falling or staying asleep.¹⁵

10 ANOVA $F(2,270) = 57.9, p < .0001$.

11 Is restless, can’t sit still: $\chi^2(4) = 56.8, p < .0001$; Hits, shoves, kicks or bites children (not siblings): $\chi^2(4) = 77.1, p < .0001$; Hits, bites or kicks you (or other parent): $\chi^2(4) = 28.7, p < .0001$; Is destructive, breaks or ruins things on purpose: $\chi^2(4) = 41.6, p < .0001$; Gets hurt so often that you can’t take your eyes off him/her: $\chi^2(4) = 34.9, p < .0001$; Purposely tries to hurt you (or other parent): $\chi^2(4) = 19.5, p < .0037$; Is afraid of certain places, animals or things: $\chi^2(4) = 27.4, p < .0001$; Cries or hangs onto you when you try to leave: $\chi^2(4) = 91.3, p < .0001$; Has less fun than other children: $\chi^2(4) = 37.0, p < .0001$; Seems very unhappy, sad, depressed or withdrawn: $\chi^2(4) = 29.0, p < .0001$; Refuses to eat: $\chi^2(4) = 17.2, p < .0095$; Won’t touch some objects because of how they feel: $\chi^2(4) = 57.0, p < .0001$; Has trouble adjusting to changes: $\chi^2(4) = 16.7, p < .01$; Often gets very upset: $\chi^2(4) = 23.7, p < .0010$; Cries or tantrums until exhausted: $\chi^2(4) = 39.4, p < .0001$; Gags or chokes on food: $\chi^2(4) = 20.8, p < .0018$; Runs away in public places: $\chi^2(4) = 31.3, p < .0001$; Does not react when hurt: $\chi^2(4) = 112.4, p < .0001$; When upset, gets very still, freezes or doesn’t move: $\chi^2(4) = 31.3, p < .0001$.

12 ANOVA $F(3,269) = 3.88, p < .0097$.

13 Is restless and can’t sit still: $\chi^2(6) = 34.3, p < .0001$; Hits, bites or kicks you (or other parent): $\chi^2(6) = 34.9, p < .0003$; Purposely tries to hurt you (or other parent): $\chi^2(6) = 53.6, p < .0001$.

14 Cries or hangs onto you when you try to leave: $\chi^2(6) = 44.4, p < .0001$.

15 Won’t touch some objects because of how they feel: $\chi^2(6) = 24.8, p < .0063$; Has trouble falling asleep or staying asleep: $\chi^2(6) = 23.9, p < .0039$.

For these specific behaviours, children with no siblings generally showed the most problems (e.g., 30% of children with no siblings hit, bit or kicked a parent “sometimes” or “often” compared with 20% with one, two or three or more siblings). However, on some items, children with three or more siblings also showed higher rates than children with one or two siblings (e.g., 48% of children with no siblings and 47% of those with three or more siblings “sometimes” or “often” wouldn’t touch certain things because of how they felt compared with 41–42% of children with one or two siblings).

Differences between children from metropolitan and regional localities on behaviour problems

The final comparison was between children living in metropolitan and regional localities.¹⁶ In terms of the total number of behaviour problems, children from metropolitan localities tended to have a slightly higher number of behaviour problems than children from regional localities, as displayed in Figure 9.1.¹⁷ However, when looking at the specific types of problem behaviours, none of these were significant at the $p < .01$ level (seven were significant at the $p < .05$ level).

9.2 Competencies at 2–3 years

The competency scale of the BITSEA was used to measure socially competent functioning among 2–3 year old children. The BITSEA includes 11 items assessing aspects such as cooperation, obedience, responding appropriately to others, and showing affection and empathy. Mothers rated how often their children had shown the various behaviours in the past month, using a three-point scale of 0 = “Not true/Rarely”, 1 = “Somewhat true/Sometimes” and 2 = “Very true/Often”.

A *total BITSEA competency score* was computed, by summing the ratings made over all the competency items. The average for the total cohort was 17.2 (*SE* 0.06), with a possible range of 0 to 22. The cohort average is near the top of the range, suggesting that children typically showed high levels of competence.

Table 9.2 shows how frequently children showed the various competent behaviours, ordered from the most to the least common. Close to 90% of children were “often” affectionate and/or

Table 9.2 Percentage of children showing differing types of competencies at 2–3 years, BITSEA scale (mothers’ reports), B cohort, Wave 2

	Not true/ Rarely	Somewhat true/ Sometimes	Very true/ Often	Total
	%			
Is affectionate with loved ones	1.0	9.1	89.9	100.0
Shows pleasure when he/she succeeds (e.g., claps for self)	0.6	11.3	88.1	100.0
Looks right at you when you say his/her name	1.2	21.1	77.7	100.0
Plays well with other children (not including brother/sister)	2.1	26.1	71.9	100.0
Looks for you (or other parent) when upset	2.3	26.1	71.6	100.0
Imitates playful sounds when you ask him/ her to	3.3	32.8	63.9	100.0
Points to show you something far away	3.2	35.7	61.1	100.0
Hugs or feeds dolls or stuffed animals	7.9	31.2	61.0	100.0
Tries to help when someone is hurt (e.g., gives a toy)	4.6	42.7	52.6	100.0
Follows rules	3.2	63.7	33.1	100.0
Can pay attention for a long time (not including TV)	8.7	64.6	26.6	100.0

Note: Percentages may not total 100% due to rounding.

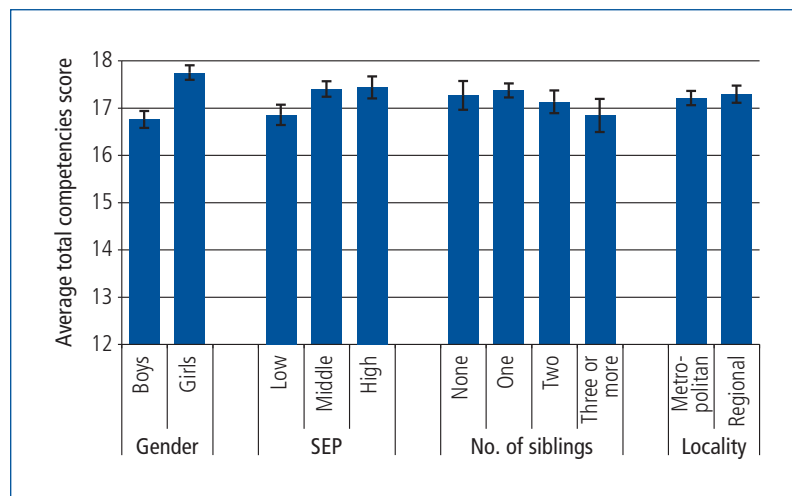
¹⁶ Metropolitan areas are defined as capital city statistical divisions, while regional areas are defined as the rest of the state/territory outside the capital city statistical divisions.

¹⁷ ANOVA $F(1,271) = 7.28, p < .01$.

showed pleasure when they succeeded, and more than 70% “often” interacted well with others in various ways. Fewer, but still a majority of children, “often” tried to help when someone was hurt. However, only about one-third “often” followed rules, although almost two-thirds “sometimes” did so. Similarly, only about one-quarter were “often” able to pay attention for a long time, although approximately two-thirds were “sometimes” able to do so. Conversely, very few children were rated as “rarely” displaying these socially competent behaviours (generally less than 5%).

Differences between 2–3 year old boys and girls on competencies

In general, girls showed a significantly higher total number of competencies than boys,¹⁸ as depicted in Figure 9.2. When the separate facets of competency were examined, there were significant gender differences on five of the eleven items (showing pleasure when succeeding, following rules, ability to pay attention for a long time, helping when someone is hurt, and hugging or feeding dolls or stuffed animals).¹⁹



Note: SEP = Family socio-economic position.

Figure 9.2 Comparison of 2–3 year old sub-groups on the total number of competencies, BITSEA scale (mothers' reports), B cohort, Wave 2

Differences between 2–3 year old children from differing socio-economic backgrounds on competencies

Next, children from differing socio-economic backgrounds were compared on the competencies exhibited. Looking first at the total number of competencies overall, children from families in the lowest 25% of family socio-economic position showed significantly lower levels of competencies than children whose families were in the middle 50% and top 25%, as displayed in Figure 9.2. Levels of competencies of children from families in the top 25% did not differ from those of children from families in the middle 50%.²⁰

These differences were evident on all but one of the different aspects of competency measured.²¹ The most powerful differences were found on affectionateness towards loved ones, and ability to

18 ANOVA $F(1,271) = 66.57, p < .0001$.

19 Shows pleasure when succeeds: $\chi^2(2) = 15.4, p < .0011$; Hugs or feeds dolls or stuffed animals: $\chi^2(2) = 672.5, p < .0001$; Tries to help when someone is hurt: $\chi^2(2) = 40.3, p < .0001$; Follows rules: $\chi^2(2) = 25.5, p < .0002$; Can pay attention for a long time (not including TV): $\chi^2(2) = 28.4, p < .0001$.

20 ANOVA $F(2,270) = 9.26, p < .001$.

21 Is affectionate with loved ones: $\chi^2(4) = 77.0, p < .0001$; Shows pleasure when he/she succeeds: $\chi^2(4) = 62.6, p < .0001$; Looks right at you when you say his/her name: $\chi^2(4) = 17.2, p < .0081$; Plays well with other children (not including siblings): $\chi^2(4) = 34.4, p < .0001$; Looks for you (or other parent) when upset: $\chi^2(4) = 35.1, p < .0001$; Imitates playful sounds when asked: $\chi^2(4) = 63.8, p < .0001$; Hugs or feeds dolls or stuffed animals: $\chi^2(4) = 18.9, p < .0030$; Tries to help when someone is hurt: $\chi^2(4) = 21.3, p < .0011$; Follows rules: $\chi^2(4) = 39.78, p < .0001$; Can pay attention for a long time (not including TV): $\chi^2(4) = 66.5, p < .0001$.

maintain attention for a long time. Generally, as socio-economic position increased, so did levels of competency. For example, 84% of children from the low SEP group were often affectionate with loved ones, compared with 92% of children from the middle SEP group and 94% of those from the high SEP group. However, on some items, children from families in the lowest 25% displayed lower levels than the other two groups, which were similar (e.g., showing pleasure when they succeeded, playing well with other children). On other aspects, children from families in the highest 25% showed higher levels than children in the middle and low SEP groups, which were similar (e.g., ability to pay attention for a long time, looking when the parent says their name).

Differences on competencies between 2–3 year old children according to the number of siblings in the family

Levels and types of competencies among children with differing numbers of siblings are next examined, comparing children with no siblings, one sibling, two siblings, and three or more siblings. On the total number of competencies, no significant differences were found,²² as displayed in Figure 9.2.

However, there were significant differences on three of the 11 competency items (playing well with other children, imitating sounds, and pointing to show the parent something),²³ with children with three or more siblings tending to show lower levels on these aspects than children with fewer or no siblings.

Differences between children from metropolitan and regional localities on competencies

Comparisons of children living in metropolitan and regional localities revealed no significant differences on the total number of competencies overall (see Figure 9.2),²⁴ and only one significant difference on the specific types of competencies measured (ability to pay attention for a long time).²⁵

9.3 Summary of trends at 2–3 years

Considering the data on behaviour problems and competencies together, it is clear that 2–3 year old children tended to show high levels of competencies but also a small number of behaviour problems.

Competencies such as showing affection, showing pleasure when the child succeeded and attending when the child's name was said were typical of at least three-quarters of children. Common behaviour problems included restlessness and inability to sit still; running away in a public place; showing fear of certain places, animals or things; crying or hanging onto the child's parent when the parent was leaving; and refusing to eat certain foods. These behaviours occurred "sometimes" or more often among approximately 50% of children.

Boys tended to show more behaviour problems than girls, and slightly lower levels of competencies. Children whose families were in the lowest 25% on family socio-economic position showed higher levels of behaviour problems and lower competencies of almost all types than children whose families were of middle or high socio-economic position. Children with no siblings, or three or more siblings, tended to show more behaviour problems than other children, but similar levels of competencies. Finally, children living in metropolitan areas showed slightly higher levels of total behaviour problems, but similar levels of competencies compared to those living in regional areas.

22 ANOVA $F(3,269) = 2.90, p = 0.035$.

23 Plays well with other children: $\chi^2(6) = 32.0, p < .01$; Imitates playful sounds when you ask him/her to: $\chi^2(6) = 25.5, p < .0029$; Points to show you something far away: $\chi^2(6) = 25.7, p < .0027$.

24 ANOVA $F(1,271) = 0.49, p = 0.4831$.

25 Can pay attention for a long time: $\chi^2(2) = 14.5, p < .0019$.

9.4 Prevalence of behaviour problems at 4–5 years

The next section examines the incidence of behaviour problems among 4–5 year old children using the reports of B cohort primary parents (Parent 1) on the Strengths and Difficulties Questionnaire (SDQ) collected in Wave 3. The SDQ includes 25 items assessing scales of *conduct problems*, *hyperactivity*, *emotional symptoms* and *peer problems*. Parents rate how often the behaviours had occurred during the previous six months, using a three-point scale of 0 = “Not true”, 1 = “Somewhat true” and 2 = “Certainly true”. As the great majority of primary parents were mothers (more than 96% at all waves), these analyses are restricted to mothers’ reports. The data are based on the reports of approximately 3,740 mothers.²⁶

Cohort scores on the four behaviour problem scales are shown below in Figure 9.3. The possible range of scores was 0 to 10. The mean scores for emotional symptoms and peer problems are approximately 1.5, slightly above the lowest possible score, suggesting that LSAC children generally showed few signs of problems in these areas. The mean score on conduct problems was slightly higher at around 2, indicating that, on average, one of these behaviours was “certainly” present or two behaviours were “somewhat” present. The mean score for hyperactivity was close to 3.5, suggesting that children typically showed several of these types of behaviours. However, all mean scores were towards the low end of the range, indicating that children generally showed some, but not a large number of, problem behaviours.

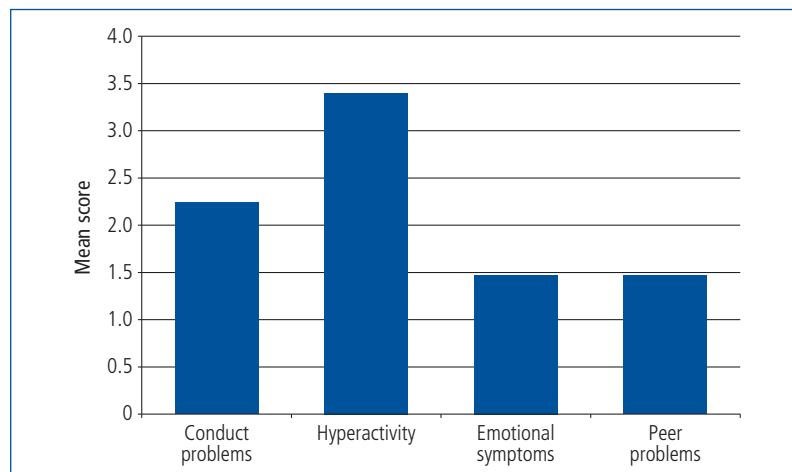


Figure 9.3 Cohort mean scores on SDQ behaviour problem scales (mothers’ reports), B cohort, Wave 3

It is possible that within these composite scales, certain behaviours may be quite common among 4–5 year olds and others extremely rare. This issue is examined next.

Table 9.3 shows the prevalence of differing kinds of behaviour problems, with the behaviours ordered from the most to the least frequent. Looking first at *conduct problems*, the most common types shown by children were losing their temper and/or arguing with adults, with the majority reported to do so at least “somewhat”. However, generally fewer than 10% “certainly” displayed these behaviours.

Signs of *hyperactivity* were “somewhat” or “certainly” evident among quite a number of children. For example, the majority were reported to “sometimes” or “certainly” be restless and/or easily distracted, while for only approximately one-quarter was it “certainly true” that the child had a good attention span and/or thought things out before acting. Additionally, between 6 and 10% of children showed clear-cut hyperactive problems (as indicated by a “certainly true” rating) on three of the five items.

Emotional symptoms were relatively rare. On only one aspect (nervousness or clinginess in new situations) did the majority of children “somewhat” or “certainly” display this behaviour, according

²⁶ Response rates varied slightly across the separate SDQ items.

Table 9.3 Percentage of children showing differing types of behaviour problems at 4–5 years, SDQ (mothers' reports), B cohort, Wave 3

	Not true	Somewhat true	Certainly true	Total
	%			
Conduct problems				
Often has temper tantrums or hot tempers	45.3	45.1	9.6	100.0
Often argumentative with adults	52.5	40.6	6.9	100.0
Can be spiteful towards others	73.1	24.7	2.2	100.0
Often fights with other children or bullies them	85.3	13.0	1.6	100.0
Generally obedient, usually does what adults request ^a	3.3	53.1	43.6	100.0
Hyperactivity				
Restless, overactive, cannot stay still for long	49.2	39.7	11.0	100.0
Easily distracted, concentration wanders	43.1	48.1	8.7	100.0
Constantly fidgeting or squirming	63.7	30.0	6.3	100.0
Sees tasks through to the end, good attention span ^a	10.3	61.9	27.8	100.0
Can stop and think things out before acting ^a	9.1	68.0	22.8	100.0
Emotional symptoms				
Nervous or clingy in new situations, easily loses confidence	47.4	42.8	9.8	100.0
Many fears, easily scared	70.6	25.7	3.8	100.0
Often complains of headaches, stomach aches or sickness	82.5	14.7	2.8	100.0
Many worries, often seems worried	84.1	13.5	2.5	100.0
Often unhappy, down-hearted or tearful	88.6	9.8	1.6	100.0
Peer problems				
Rather solitary, tends to play alone	59.3	35.4	5.3	100.0
Gets on better with adults than with other children	71.3	24.2	4.6	100.0
Picked on or bullied by other children	84.4	14.2	1.4	100.0
Has at least one good friend ^a	3.8	19.4	76.8	100.0
Generally liked by other children ^a	1.1	21.3	77.6	100.0

Note: ^a These items are reverse scored.

to mothers. On three of the five items (worrying; unhappiness; complaints of headaches), more than 80% of mothers reported that this was “not true” of their children.

Similarly, the great majority of children did not show *peer problems* (71% to 84% across four of the five items), although slightly more (40%) were “somewhat” or “certainly” solitary and tended to play alone.

Differences between 4–5 year old boys and girls on behaviour problems

Levels of behaviour problems among boys and girls are shown in Figure 9.4. There were significant gender differences on hyperactivity,²⁷ emotional symptoms²⁸ and peer problems,²⁹ but not on

27 ANOVA $F(1,271) = 77.08, p < .0001$.

28 ANOVA $F(1,271) = 11.71, p < .0008$.

29 ANOVA $F(1,271) = 21.51, p < .0001$.

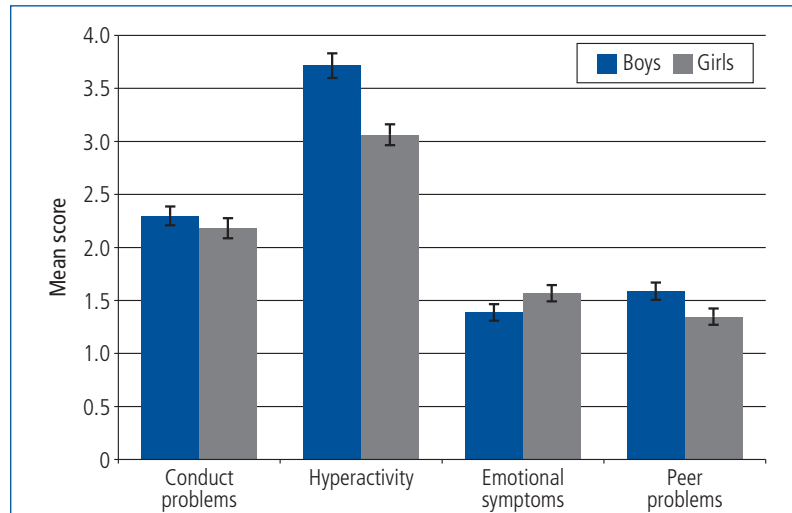


Figure 9.4 Comparison of boys and girls on SDQ behaviour problem scales at 4–5 years (mothers' reports), B cohort, Wave 3

conduct problems.³⁰ More boys than girls showed hyperactivity and peer problems while more girls than boys showed emotional symptoms.

We turn now to gender differences on specific problem behaviours. In keeping with the composite scores, girls and boys were most similar in the area of conduct problems, with significant differences on only one item,³¹ and most dissimilar on hyperactivity, with significant differences on all five items.³² There were significant gender differences on two of the five emotional symptom items³³ and three of the five peer problem items.³⁴

Differences between 4–5 year old children from high, average and low socio-economic family backgrounds on behaviour problems

Children from the top 25%, middle 50% and lowest 25% of the distribution on family socio-economic position were compared on levels of behaviour problems on the four SDQ scales. Figure 9.5 shows that there were significant differences on all scales, with children from families in the lowest 25% showing more behaviour problems than children from the other two groups. Additionally, children from families in the middle 50% showed significantly more problems than children whose families were in the highest 25%.³⁵

As was found at 2–3 years of age, there were significant differences on almost all the specific types of problem behaviours according to family socio-economic position. Generally, as socio-economic position increased, levels of behaviour problems decreased. Differences were evident on all conduct

³⁰ ANOVA $F(1,271) = 3.26, p = .072$.

³¹ Generally obedient, usually does what adults request: $\chi^2(2) = 19.9, p < .001$ (reverse scored).

³² Restless, overactive, cannot stay still for long: $\chi^2(2) = 70.5, p < .0001$; Easily distracted, concentration wanders: $\chi^2(2) = 63.0, p < .0001$; Constantly fidgeting or squirming: $\chi^2(2) = 19.3, p < .0007$; Sees tasks through to the end, good attention span: $\chi^2(2) = 61.0, p < .0001$ (reverse scored); Can stop and think things out before acting: $\chi^2(2) = 32.2, p < .0001$ (reverse scored).

³³ Nervous or clingy in new situations, easily loses confidence: $\chi^2(2) = 22.0, p < .0002$; Often complains of headaches, stomach aches or sickness: $\chi^2(2) = 28.9, p < .0001$.

³⁴ Rather solitary, tends to play alone: $\chi^2(2) = 13.7, p < .0046$; Picked on or bullied by other children: $\chi^2(2) = 31.6, p < .0001$; Generally liked by other children: $\chi^2(2) = 18.7, p < .0022$ (reverse scored).

³⁵ ANOVA; Conduct problems scale: $F(2,270) = 44.42, p < .0001$; Hyperactivity scale: $F(2,270) = 90.65, p < .0001$; Emotional symptoms scale: $F(2,270) = 15.64, p < .001$; Peer problems scale: $F(2,270) = 37.34, p < .0001$.

problems items³⁶ and hyperactivity items,³⁷ two of the five emotional symptoms items,³⁸ and all peer problems items.³⁹

The largest disparities between groups were found on “restless, overactive, cannot sit still for long” and “easily distracted, concentration wanders”—a difference of 21% between children in the highest SEP and lowest SEP groups on the proportion who showed signs of these problems. There were also divergences of 17% between these two groups on “often has temper tantrums” and “constantly fidgeting or squirming”.

Differences between 4–5 year old children on behaviour problems according to the number of siblings in the family

Children with differing numbers of siblings are next compared on the four SDQ scales, as shown in Figure 9.6. There were significant differences on peer problems only.⁴⁰ Children who had no siblings or three or more siblings tended to show more peer problems than children with one or two siblings.

When the specific behaviour problem items were examined, there were significant differences on five items. These were being argumentative with adults,⁴¹ having at least one good friend,⁴² getting on better with adults than other children,⁴³ fighting with or bullying other children⁴⁴ and being solitary.⁴⁵ There were also trends for differences on two other items, but these did not reach significance at the $p < .01$ level.

Differences between children from metropolitan and regional localities on behaviour problems

Differences between children living in metropolitan and regional localities are shown in Figure 9.7. There were significant differences on the SDQ conduct problems scale only,⁴⁶ with regional children showing significantly higher levels of these behaviour problems.

However, metropolitan and regional children differed only on three of the specific types of behaviours measured: tendency to fight with other children or bully them,⁴⁷ having a good attention span,⁴⁸ and having at least one good friend.⁴⁹ In contrast to the trends at 2–3 years, these differences were in the direction of a higher rate of problems among children from regional localities. There were trends for differences on a further seven items, but these did not reach the adjusted significance level.

36 Often has temper tantrums or hot tempers: $\chi^2(4) = 61.1, p < .0001$; Often argumentative with adults: $\chi^2(4) = 46.9, p < .0001$; Can be spiteful towards others: $\chi^2(4) = 51.2, p < .0001$; Often fights with other children or bullies them: $\chi^2(4) = 51.3, p < .0001$; Generally obedient, usually does what adults request: $\chi^2(4) = 45.0, p < .0001$ (reverse scored).

37 Restless, overactive, cannot stay still for long: $\chi^2(4) = 103.1, p < .0001$; Easily distracted, concentration wanders: $\chi^2(4) = 105.8, p < .0001$; Constantly fidgeting or squirming: $\chi^2(4) = 62.5, p < .0001$; Sees tasks through to the end, good attention span: $\chi^2(4) = 73.6, p < .0001$ (reverse scored); Can stop and think things out before acting: $\chi^2(4) = 25.7, p < .0004$.

38 Often complains of headaches, stomach aches or sickness: $\chi^2(4) = 32.1, p < .0001$; Often unhappy, down-hearted or tearful: $\chi^2(4) = 33.6, p < .0001$.

39 Rather solitary, tends to play alone: $\chi^2(4) = 18.9, p < .0050$; Gets on better with adults than with other children: $\chi^2(4) = 31.3, p < .0001$; Picked on or bullied by other children: $\chi^2(4) = 47.2, p < .0001$; Has at least one good friend: $\chi^2(4) = 46.7, p < .0001$ (reverse scored); Generally liked by other children: $\chi^2(4) = 41.6, p < .0001$ (reverse scored).

40 ANOVA; Conduct problems scale: $F(3,269) = 0.48, p = .699$; Hyperactivity scale: $F(3,269) = 2.78, p = .042$; Emotional symptoms scale: $F(3,269) = 3.18, p = .025$; Peer problems scale: $F(3,269) = 12.32, p < .0001$.

41 $\chi^2(6) = 35.6, p < .0002$.

42 $\chi^2(6) = 29.9, p < .0010$.

43 $\chi^2(6) = 43.1, p < .0002$.

44 $\chi^2(6) = 32.0, p < .0033$.

45 $\chi^2(6) = 40.3, p < .0002$.

46 ANOVA; Conduct problems: $F(1,271) = 7.71, p < .0060$; Hyperactivity: $F(1,271) = 5.72, p = .0175$; Emotional symptoms: $F(1,271) = 1.10, p = .294$; Peer problems: $F(1,271) = 1.80, p = .181$.

47 $\chi^2(2) = 18.9, p < .0026$.

48 $\chi^2(2) = 29.0, p < .0001$.

49 $\chi^2(2) = 13.2, p < .0049$.

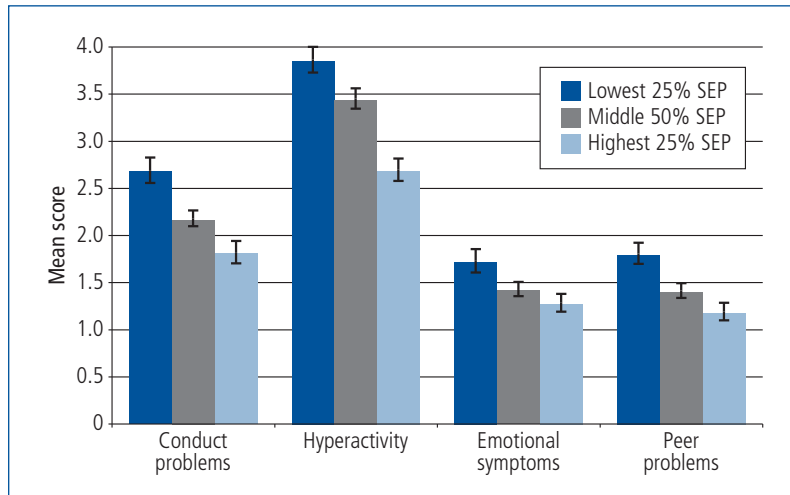


Figure 9.5 Comparison of children from families differing on socio-economic position on SDQ behaviour problem scales at 4–5 years (mothers' reports), B cohort, Wave 3

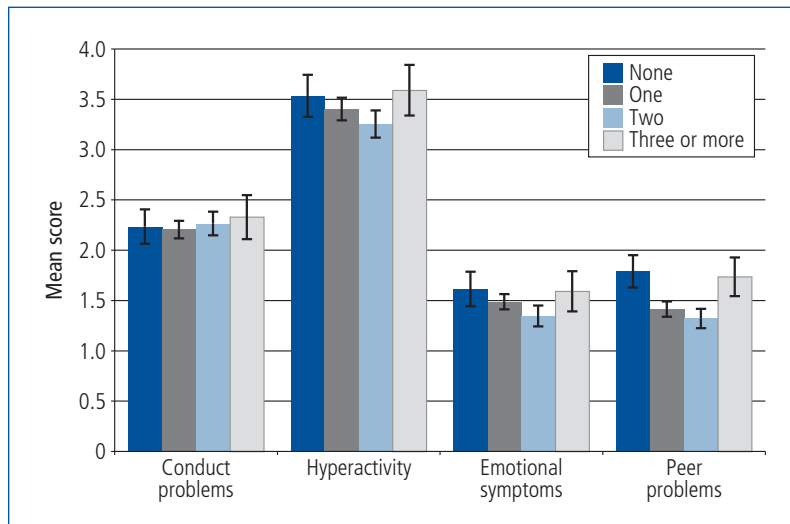


Figure 9.6 Comparison of 4–5 year old children with differing numbers of siblings on SDQ behaviour problem scales (mothers' reports), B cohort, Wave 3

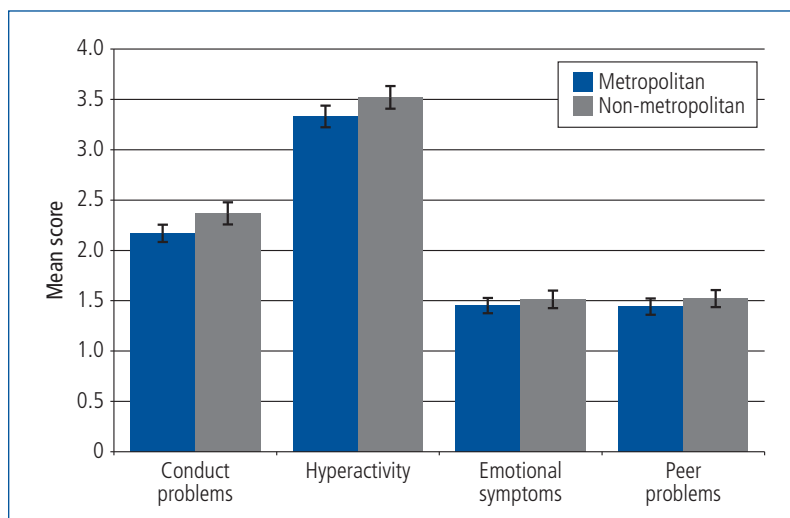


Figure 9.7 Comparison of 4–5 year old children from metropolitan and regional areas on SDQ behaviour problem scales (mothers' reports), B cohort, Wave 2

9.5 Competencies at 4–5 years

The prosocial behaviour scale from the Strengths and Difficulties Questionnaire was used to assess children's competencies at 4–5 years of age. The five items cover behaviours such as kindness to others, considerateness, helpfulness and willingness to share. Mothers rated how often the behaviours had occurred during the past six months, using a three-point scale of 0 = "Not true", 1 = "Somewhat true" and 2 = "Certainly true". When scores on the items were summed, the cohort mean score was 7.7 (*SE* 0.03) out of a possible range of 0 to 10. As this mean score is towards the top end of the range, it suggests that levels of competency were typically high among LSAC children. The mean score equates to almost four out of five prosocial behaviours being "certainly" present.

Table 9.4 shows the specific prosocial behaviours measured, and which behaviours were most common. Kindness to younger children was the most frequently occurring behaviour, with this being very characteristic of approximately three-quarters of children. A majority of children were typically helpful when another person was hurt or upset, and/or were considerate of others' feelings. At the other extreme, generally only 1–4% of children did not display prosocial behaviours.

Table 9.4 Percentage of children showing prosocial behaviour at 4–5 years, SDQ (mothers' reports), B cohort, Wave 3

	Not true	Somewhat true	Certainly true	Total
	%			
Kind to younger children	1.5	25.0	73.5	100.0
Helpful if someone is hurt, upset or feeling ill	2.4	34.5	63.1	100.0
Considerate of other people's feelings	1.7	44.5	53.8	100.0
Often volunteers to help others (parents, teachers, other children)	4.5	49.5	46.0	100.0
Shares readily with other children (treats, toys, pencils etc.)	2.6	53.3	44.1	100.0

Note: Percentages may not total 100% due to rounding.

Differences between 4–5 year old boys and girls on prosocial behaviour

Girls and boys were compared on their total number of prosocial behaviours, which are shown in Figure 9.8. Girls tended to have significantly more competencies than boys.⁵⁰ These gender differences were evident over all the facets of prosocial behaviour examined, with differences most noticeable in being kind to younger children (12% more girls were "certainly" like this) and volunteering to help others (15% more girls "certainly" did so).⁵¹

Differences between 4–5 year old children from differing socio-economic backgrounds on prosocial behaviour

There were significant differences on overall levels of prosocial skills when children from families in the lowest 25%, middle 50% and highest 25% on socio-economic position were compared via ANOVA analysis (see Figure 9.8).⁵² Children from families in the lowest 25% showed significantly lower skills than children in the other two groups. The two more advantaged groups did not differ significantly.

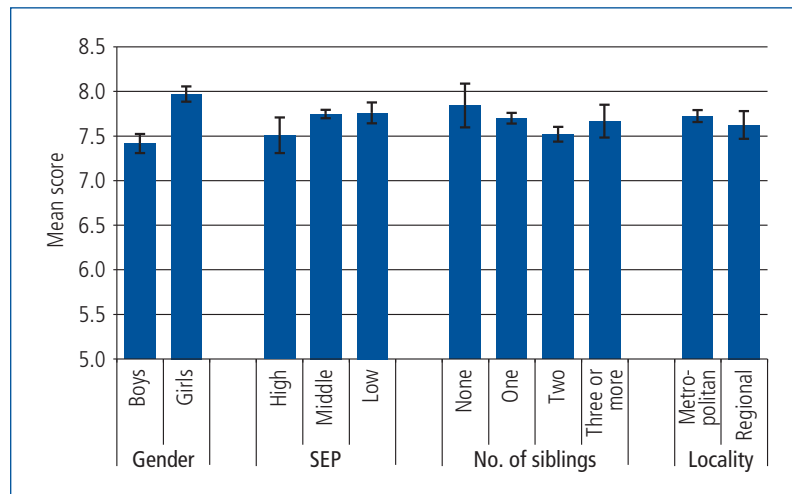
Looking next at the specific prosocial items, there were significant differences on three of the five items (kind to younger children; helpful if someone is hurt, upset or ill; considerate of others' feelings).⁵³ Children from the most disadvantaged families were somewhat less likely to show these prosocial behaviours.

50 ANOVA $F(1,271) = 85.37, p < .0001$.

51 Kind to younger children: $\chi^2(2) = 64.6, p < .0001$; Helpful if someone is hurt, upset or feeling ill: $\chi^2(2) = 42.5, p < .0001$; Considerate of other people's feelings: $\chi^2(2) = 15.8, p < .0024$; Often volunteers to help others: $\chi^2(2) = 88.1, p < .0001$; Shares readily with other children: $\chi^2(2) = 37.8, p < .0001$.

52 ANOVA $F(2,270) = 9.15, p < .001$.

53 Kind to younger children: $\chi^2(4) = 20.2, p < .0013$; Helpful if someone is hurt, upset or feeling ill: $\chi^2(4) = 18.6, p < .0018$; Considerate of other people's feelings: $\chi^2(4) = 44.8, p < .0001$.



Note: SEP = Family socio-economic position.

Figure 9.8 Comparison of 4–5 year old subgroups on SDQ prosocial behaviour scale (mothers' reports), B cohort, Wave 3

Differences on prosocial behaviour between 4–5 year old children according to the number of siblings in the family

As Figure 9.8 suggests, there were no significant differences between children with differing numbers of siblings in their overall levels of prosocial skills.⁵⁴ Further, on only two items (being considerate of others' feelings and being helpful if someone is hurt, upset or ill) were there significant differences between children who had no siblings, one sibling, two siblings, and three or more siblings.⁵⁵

Differences on prosocial behaviour between 4–5 year old children from metropolitan and regional localities

There were no significant differences between children from metropolitan and regional localities on overall levels of prosocial skills or on any of the individual prosocial behaviour items.⁵⁶

9.6 Summary of trends at 4–5 years

The picture of children's social and emotional wellbeing that emerged at 4–5 years is similar to that which we saw at 2–3 years. Prosocial behaviours were extremely common, particularly kindness towards others, helpfulness and considerateness. Nevertheless, externalising behaviours such as conduct problems or hyperactivity were quite common as well, although only approximately 10% of children showed definite problems in these areas. However, while certain specific types of behaviour problems were quite common, the total level of problems was generally relatively low when behaviours were summed for the four sub-scales of conduct problems, hyperactivity, emotional symptoms and peer problems (means ranging from 1.5–3.5 in a possible range of 0–10). On the other hand, the total level of competencies, as measured on the SDQ prosocial scale, tended to be high (mean score of 7.7 on a possible range of 0–10).

More boys showed hyperactivity and peer problems than girls, while more girls than boys showed emotional symptoms. Boys also tended to have less well developed prosocial skills. Levels of behaviour problems were significantly higher among children from families in the lowest 25% on socio-economic position than among other children, and their prosocial skills tended to be less well developed as well. Children with no siblings or three or more siblings tended to have slightly more

⁵⁴ ANOVA $F(3,269) = 2.54, p = .057$.

⁵⁵ Considerate of other people's feelings: $\chi^2(6) = 24.6, p < .0075$; Helpful if someone is hurt, upset or feeling ill: $\chi^2(6) = 25.2, p < .0018$.

⁵⁶ ANOVA $F(1,271) = 4.49, p = .035$.

behaviour problems than other children, but were similar in their levels of prosocial behaviour. There were some differences between children living in metropolitan and regional localities, with those from regional localities a little more likely to show problems. However, they did not differ on prosocial capacities.

9.7 Summary

This chapter has provided an overview of how 2–3 year olds (see section 9.3) and 4–5 year olds (see section 9.6) participating in LSAC were faring in terms of their social and emotional wellbeing. While behaviour problems were evident among some—especially externalising types of problems—a substantial majority of children showed high levels of competencies and prosocial behaviours. It could therefore be concluded that, on balance, most children were progressing well at this stage of development.

9.8 Further reading

Edwards, B. & Bromfield, L. (2009). Neighborhood influences on young children's conduct problems and pro-social behavior: Evidence from an Australian national sample. *Children and Youth Services Review*, 31, 317–324.

Smart, D. & Sanson, A. (2008). Do today's Australian children have more problems today than twenty years ago? *Family Matters*, 79, 50–57.

9.9 References

Axelson, D. A., & Birmaher, B. (2001). Relation between anxiety and depressive disorders in childhood and adolescence. *Depression and Anxiety*, 14, 67–78.

Biederman, J., Faraone, S., Milberger, S., Curtis, S., Chen, L., Marrs, A., Ouellette, S., Moore, P., & Spencer, T. (1996). Predictors of persistence and remission of ADHD into adolescence: Results from a four-year prospective follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 343–351.

Briggs-Gowan, M. J., & Carter, A. S. (2006). *BITSEA: Brief Infant–Toddler Social and Emotional Assessment (Examiner's Manual)*. USA: Harcourt Assessment.

Brady, E.U., & Kendall, P. C. (1992). Comorbidity of anxiety and depression in children and adolescents. *Psychological Bulletin*, 111, 244–255.

Campbell, S. B. (2002). *Behavior problems in preschool children: Clinical and developmental issues* (2nd Ed.). New York: Guilford Press.

Connor, D. F., Steeber, J., & McBurnett, K. (2010). A review of attention-deficit/hyperactivity disorder complicated by symptoms of oppositional defiant disorder or conduct disorder. *Journal of Developmental and Behavioral Pediatrics*, 31, 427–440.

Egger, H. L., & Angold, A. (2006). Common emotional and behavioural disorders in preschool children: Presentation, nosology and epidemiology. *Journal of Child Psychology and Psychiatry*, 47, 313–337.

Elias, M. J., & Haynes, N. M. (2008). Social competence, social support, and academic achievement in minority, low-income, urban elementary school children. *School Psychology Quarterly*, 23, 474–495.

Gresham, F. M., & Elliott, S. N. (1990). *Social Skills Rating System manual*. Circle Pines, MN: American Guidance Service.

Hagekull, B., & Bohlin, G. (1992). Prevalence of problematic behaviors in four year olds. *Scandinavian Journal of Psychology*, 33, 359–369.

Koot, H. M., Van Den Oord, E. J., Verhulst, F., & Boosma, D. I. (1997). Behavioral and emotional problems in young preschoolers: Testing the validity of the Child Behaviour Checklist/2–3. *Journal of Abnormal Child Psychology*, 25, 183–196.

Moffitt, T. E., Caspi, A., Dickson, N., Silva, P., & Stanton, W. (1996). Childhood-onset versus adolescent-onset antisocial conduct problems in males: Natural history from ages 3 to 18 years. *Development and Psychopathology*, 8, 399–424.

Pierce, E. W., Ewing, L. J., & Campbell, S.B. (1999). Diagnostic status and symptomatic behavior of hard-to-manage preschool children in middle childhood and early adolescence. *Journal of Clinical Child Psychology*, 28, 44–57.

Sawyer, M. G., Arney F. M., Baghurst, P. A., Clark, J. J., Graertz, B. W., Kosky, R. J., Nurcombe, B., Patton, G. C., Prior, M. R., Raphael, B., Rey, J., Whaites, L. C., & Zubrick, S. R. (2000). *The mental health of young people in Australia*. Canberra: Mental Health and Special Programs Branch, Department of Health and Aged Care.

Thomas, B. H., Byrne, C., Offord, D. R., & Boyle, M. H. (1991). Prevalence of behavioral symptoms and the relationship of child, parent and family variables in 4- and 5-year-olds: Results from the Ontario Child Health Study. *Developmental and Behavioral Pediatrics*, 12, 177–184.

Tolan, P. H., Gorman-Smith D., & Loeber, R. (2000). Developmental timing of onsets of disruptive behaviors and later delinquency of inner city youth. *Journal of Child and Family Studies*, 9, 203–220.

Children's language development

10

Catherine L. Taylor

Curtin Health Innovation Research Institute and the Telethon Institute for Child Health Research

Brigit Maguire

Australian Institute of Family Studies

Stephen R. Zubrick

Curtin Health Innovation Research Institute and the Telethon Institute for Child Health Research

Language development is one of the most important developmental accomplishments of early childhood and is the foundation for literacy, educational achievement and post-school opportunities (Law, Rush, Schoon, & Parsons, 2009). Decades of research have shown that there are striking patterns in the way children acquire language and develop literacy (Shonkoff & Phillips, 2000). This large body of research informs national curriculum standards and benchmarking such as the Australian Early Development Index (AEDI) (Centre for Community Child Health [CCCH] and Telethon Institute for Child Health Research, 2009) and the National Assessment Program—Literacy and Numeracy (NAPLAN) (Australian Curriculum Assessment and Reporting Authority [ACARA], 2010). Benchmarking is important for monitoring children's development. Recent educational benchmarking in Australia has shown that, when compared to girls, a greater percentage of boys have lower literacy attainment in Years 3, 5 and 7 (Australian Institute of Health and Welfare [AIHW], 2009). Recent national benchmarking of early childhood development in Australia also indicated that a greater percentage of boys are developmentally vulnerable prior to school entry (CCCH and Telethon Institute for Child Health Research, 2009).

Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC) provides a unique opportunity to enrich our understanding of why there are gender differences in language and literacy attainment in early and middle childhood. In this chapter we take a first step in this enquiry and compare language and literacy outcomes for girls and boys in the first three waves of the study. This sets up opportunities for future studies to investigate relationships between children's individual characteristics (e.g., gender) and characteristics of their home, care, school and community environments that influence their language and literacy abilities over time.

Improving language and literacy standards is an important national goal (AIHW, 2009). LSAC has an important role in identifying, understanding and promoting positive influences on children's language and literacy attainment. The study also has an important role in identifying vulnerable children with the view to improving their developmental outcomes. With this aim in mind, this chapter focuses on the performance of girls and boys in the low range of performance as a starting point for understanding why some children do not perform as well as other children.

10.1 Language assessments: Waves 1–3

The language assessments used in Waves 1–3 are shown in Tables 10.1 and 10.2. These assessments provide multiple perspectives on language and literacy development from multiple informants. In large-scale studies such as LSAC, parent and teacher report is the most expedient way to collect comprehensive information about children's development, and face-to-face assessments are generally shortened to reduce the time involved in giving the assessment. The children's ages when the language assessments were administered are shown in Tables 10.1 and 10.2, and were

equivalent for girls and boys. All the language and literacy assessments were given in English, consistent with national benchmarking such as the AEDI and the NAPLAN. At Wave 1, 13% of children in the B cohort and 14% of children in the K cohort were growing up in families whose main language was not English.

Table 10.1 Language assessments, B cohort, Waves 1–3

Assessment	Type of assessment ^a	Skills assessed	Mean age of girls and boys (SD: 3 months)		
			Wave 1 (9 months)	Wave 2 (2 years 10 months)	Wave 3 (4 years 10 months)
CSBS DP Communication and Symbolic Behavior Scales Developmental Profile: Infant–Toddler Checklist	Parent questionnaire	Speech, language, social and cognitive skills	✓		
PEDS Parents’ Evaluation of Developmental Status: Authorised Australian version	Parent interview	Parental concern about expressive and receptive language skills	✓	✓	
CDI–3 Macarthur Communicative Development Inventory: Level 3	Parent questionnaire	Expressive vocabulary and grammatical skills		✓	
Adapted PPVT–III Adapted Peabody Picture Vocabulary Test–III	Face-to-face assessment of the child by an interviewer	Receptive vocabulary skills			✓
Teacher ^b ratings of children’s expressive and receptive language skills	Teacher questionnaire	Overall rating of expressive and receptive language skills in relation to other children of the same age			✓

Notes: ^a Parent data reported in this chapter were obtained from the child’s primary parent (Parent 1). ^b Person with primary responsibility for planning and delivering group programs, including long day care and pre-Year 1 school programs.

10.2 B cohort

Language development in Wave 1

In Wave 1, the average age of the B cohort children ($n = 5,107$) was 9 months. Two language assessments were used:

- the Communication and Symbolic Behavior Scales Developmental Profile: Infant–Toddler Checklist (CSBS DP) (Wetherby & Prizant, 2001); and
- the Parents’ Evaluation of Developmental Status (PEDS) (Glascoe, 2000).

CSBS DP

The CSBS DP was used to assess early social, language and cognitive skills. The CSBS DP is a screening assessment for children from 6–24 months that is used to identify children at risk for developmental disorders such as Specific Language Impairment, Autism Spectrum Disorder and Intellectual Disability. In large-scale studies such as LSAC, the CSBS DP also provides informative descriptive information about children’s early social, language and cognitive skills, as shown in Table 10.3. The CSBS DP asks parents to report if each skill is “not yet”, “sometimes” or “often” present. The categories “sometimes” and “often” both mean that the skill is present and Table 10.3

Table 10.2 Language assessments, K cohort, Waves 1–3

Assessment	Type of assessment ^a	Purpose	Mean age of girls and boys (SD: 3 months)		
			Wave 1 (4 years 9 months)	Wave 2 (6 years 10 months)	Wave 3 (8 years 10 months)
Adapted PPVT–III Peabody Picture Vocabulary Test–III	Face-to-face assessment of the child by an interviewer	To assess a child's receptive vocabulary abilities	✓	✓	✓
CCC–2 Children's Communication Checklist–2: Speech, Syntax, Semantics and Coherence Scales	Teacher questionnaire	To identify a child for referral to clinical services		✓	
Teacher ^b ratings of children's expressive and receptive language skills	Teacher questionnaire	To rate a child's expressive and receptive language abilities in relation to other children of the same age known by the teacher	✓		
PEDS Parents' Evaluation of Developmental Status: Authorised Australian version	Parent interview	To identify a child for referral to clinical services based on parental concern about expressive and receptive language skills	✓	✓	
Academic Rating Scale: Language and Literacy Skills, 6–7 years	Teacher questionnaire	To rate a child's language and literacy skills in relation to other children of the same age known by the teacher		✓	
Academic Rating Scale: Language and Literacy Skills, 8–9 years	Teacher questionnaire	To rate a child's language and literacy skills in relation to other children of the same age known by the teacher			✓
Teacher ^b ratings of language and literacy skills and academic achievement	Teacher questionnaire	To rate a child's language and literacy skills and academic achievement in relation to other children at the same grade level known by the teacher			✓

Notes: ^a Parent data reported in this chapter were obtained from the child's primary parent (Parent 1). ^b Person with primary responsibility for planning and delivering group programs, including long day care and pre-Year 1 school programs.

shows the percentage of boys and girls in four age groups whose parents reported that the skills were present.

Table 10.3 shows which social, language and cognitive skills emerge earlier or later than others. For example, in the "6–7 months" age group, 20% of girls and 24% of boys were reported to use one or more words. In the "12 months and older" age group, 83% of girls and 80% of boys were reported to use one or more words. Waving to greet people is also a later emerging skill. In the "6–7 months" age group, 18% of girls and 14% of boys were waving, compared to 91% of girls and 84% of boys in the "12 months and older" age group.

The 24 items on the CSBS DP shown in Table 10.3 yield a total possible raw score of 57 points. Weighted total raw scores for the whole cohort were computed and a cut-point "above" and "below" the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups.

Table 10.3 Percentage of children who had developed each skill on the CSBS DP across four age groups, B cohort, Wave 1

Skills	6–7 months ^a		8–9 months		10–11 months		> 12 months	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI ^b	% (n) 95% CI ^b	% (n) 95% CI ^b	% (n) 95% CI ^b	% (n) 95% CI ^b	% (n) 95% CI ^b	% (n) 95% CI ^b	% (n) 95% CI ^b
Emotion and use of eye gaze								
Parent knows when child is happy/upset	100.0 (483)	99.6 (512)	99.8 (751)	99.9 (822)	98.6 (558)	99.2 (569)	99.7 (398)	99.8 (397)
	–	98.1–99.9	99.2–100.0	99.0–100.0	96.7–99.4	97.8–99.7	97.6–100.0	98.4–100.0
	89.1 (428)	91.5 (469)	95.5 (722)	94.4 (777)	95.6 (539)	97.1 (559)	95.7 (385)	95.8 (382)
When playing, child checks if parent is watching	85.9–91.6	88.6–93.8	93.8–96.8	92.5–95.9	93.4–97.0	95.2–98.3	92.7–97.6	93.1–97.5
	100.0 (483)	99.7 (513)	99.9 (752)	100.0 (823)	99.5 (561)	100.0 (572)	100.0 (399)	99.8 (397)
	–	97.9–100.0	99.4–100.0	–	97.9–99.9	–	–	98.4–100.0
Child smiles/laughs while looking at parent	75.1 (365)	76.7 (392)	87.5 (657)	90.6 (744)	93.5 (525)	94.2 (543)	98.0 (392)	97.5 (387)
	71.0–78.8	72.6–80.3	84.8–89.8	88.2–92.6	91.2–95.3	91.7–96.0	95.8–99.1	95.4–98.6
Use of communication								
Child lets parent know he/she needs help to reach an object that is out of reach	82.6 (403)	83.6 (428)	90.3 (683)	91.2 (751)	94.5 (533)	91.9 (532)	97.7 (390)	96.4 (383)
	78.5–86.1	79.8–86.8	87.6–92.4	88.9–93.1	92.3–96.1	88.9–94.1	95.6–98.8	94.0–97.9
	91.5 (443)	94.2 (484)	95.7 (721)	96.4 (796)	97.0 (546)	96.2 (555)	98.0 (392)	98.0 (390)
Child tries to get parent’s attention when parent is not paying attention to child	88.4–93.8	91.5–96.0	93.9–97.0	94.8–97.6	95.1–98.2	93.8–97.7	95.9–99.1	96.0–99.0
	43.8 (214)	45.9 (230)	63.8 (477)	62.0 (500)	76.4 (422)	75.3 (434)	83.9 (335)	83.5 (333)
	39.0–48.7	41.3–50.5	60.0–67.4	58.2–65.5	72.5–79.8	71.2–79.0	79.7–87.3	79.4–87.0
Child does things just to make parent laugh	22.7 (110)	22.6 (109)	36.1 (273)	36.3 (287)	52.6 (296)	51.1 (294)	73.6 (294)	71.4 (280)
	18.8–27.1	18.9–26.7	32.4–39.9	32.8–39.9	47.8–57.3	46.5–55.7	68.8–77.9	66.5–75.8
Gestures								
Child picks up objects and gives them to parent	28.1 (130)	28.2 (144)	55.3 (415)	55.2 (451)	80.5 (459)	81.1 (467)	97.1 (388)	96.5 (384)
	24.4–32.2	24.1–32.7	51.6–59.0	51.6–58.9	76.6–83.8	77.1–84.5	94.4–98.6	94.0–97.9
	32.6 (152)	30.0 (153)	55.5 (422)	53.3 (440)	74.6 (425)	75.3 (436)	89.9 (363)	91.8 (363)
Child shows parents objects without giving them to parent	28.4–37.1	26.1–34.2	51.6–59.4	49.3–57.2	70.6–78.2	71.4–78.8	86.0–92.8	88.5–94.3
	17.9 (85)	13.5 (66)	53.5 (404)	41.0 (329)	77.3 (436)	71.4 (410)	90.7 (363)	83.9 (334)
	14.7–21.7	10.8–16.9	49.4–57.5	37.3–44.7	73.4–80.7	66.9–75.5	87.0–93.4	79.9–87.3
Child points to objects	11.3 (53)	12.2 (63)	31.5 (242)	27.9 (219)	63.6 (355)	56.6 (327)	89.4 (358)	85.8 (343)
	8.6–14.7	9.4–15.6	28.0–35.2	24.8–31.2	59.4–67.6	51.9–61.2	85.9–92.0	81.5–89.2
	3.0 (14)	3.3 (15)	10.5 (73)	9.0 (68)	28.6 (153)	19.2 (107)	44.3 (172)	36.1 (142)
Child nods for yes	1.8–5.1	2.0–5.4	8.3–13.1	6.9–11.6	24.6–32.9	16.0–22.9	39.2–49.5	31.0–41.5

Table 10.3 (cont.)

Skills	6–7 months ^a		8–9 months		10–11 months		> 12 months	
	Girls	Boys % (n) 95% CI ^b	Girls	Boys % (n) 95% CI ^b	Girls	Boys % (n) 95% CI ^b	Girls	Boys % (n) 95% CI ^b
Use of sounds								
Child uses sounds/words to get attention or help	84.2 (411) 80.4–87.4	83.0 (427) 79.3–86.2	91.4 (689) 89.0–93.3	90.7 (749) 88.3–92.6	95.7 (541) 93.4–97.3	93.6 (538) 91.0–95.5	96.8 (387) 94.1–98.3	96.0 (381) 93.1–97.7
Child strings sounds together	59.2 (288) 54.5–63.8	59.5 (302) 55.1–63.8	82.7 (619) 79.6–85.4	80.2 (659) 77.3–82.8	90.3 (508) 87.4–92.6	89.7 (511) 86.9–92.0	92.7 (372) 89.2–95.2	93.0 (371) 89.9–95.1
Child uses consonant sounds	80.1 (402) 75.9–83.7	83.6 (437) 80.1–86.6	96.2 (726) 94.5–97.3	96.3 (791) 94.7–97.4	99.8 (563) 99.0–100.0	99.0 (566) 97.9–99.5	99.6 (398) 98.4–99.9	98.7 (395) 96.8–99.5
Use of words								
Child uses one or more words	20.1 (91) 16.4–24.3	23.9 (114) 19.7–28.8	44.7 (334) 40.9–48.7	42.4 (334) 38.9–46.0	66.7 (371) 62.5–70.6	59.1 (342) 54.7–63.4	83.2 (334) 78.7–87.0	79.6 (320) 74.8–83.7
Child puts two words together	2.5 (11) 1.3–4.5	1.1 (5) 0.4–2.7	4.4 (32) 3.1–6.1	4.1 (28) 2.7–6.1	9.6 (52) 7.3–12.4	8.0 (47) 6.0–10.6	22.2 (84) 18.1–26.9	20.4 (76) 16.1–25.5
Understanding of words								
Child responds to his/her name by looking or turning towards parent	96.5 (464) 94.4–97.8	94.5 (488) 92.1–96.3	98.9 (745) 97.7–99.5	98.9 (814) 98.0–99.5	99.9 (563) 99.1–100.0	99.8 (571) 99.0–99.9	99.7 (398) 98.1–100.0	98.8 (394) 96.0–99.6
Child understands one or more words/phrases without parent using gesture	36.2 (178) 31.8–40.9	38.1 (195) 33.6–42.8	56.8 (427) 53.0–60.5	54.6 (449) 50.9–58.1	74.9 (423) 70.9–78.5	75.6 (435) 71.5–79.3	87.8 (351) 83.7–91.0	87.4 (353) 83.5–90.5
Use of objects								
Child shows interest in playing with a variety of objects	95.2 (463) 92.5–96.9	97.9 (505) 95.8–98.9	99.4 (748) 98.6–99.8	99.0 (815) 97.9–99.5	99.5 (561) 97.7–99.9	99.3 (569) 97.9–99.7	99.7 (398) 97.9–100.0	99.8 (397) 98.4–100.0
Child uses one or more objects appropriately	63.6 (316) 59.2–67.9	65.7 (340) 61.0–70.1	83.1 (624) 80.1–85.6	84.8 (701) 82.1–87.2	93.7 (530) 91.3–95.5	94.4 (540) 92.2–96.0	99.5 (398) 98.1–99.9	98.4 (392) 96.8–99.2
Child stacks one or more blocks	4.8 (21) 3.2–7.2	7.1 (35) 5.1–9.9	13.0 (98) 10.6–15.8	13.8 (112) 11.6–16.4	37.1 (209) 33.1–41.3	35.7 (210) 31.7–40.0	65.3 (263) 60.1–70.2	69.1 (281) 63.7–73.9
Child engages in pretend play with toys	2.4 (12) 1.4–4.2	3.7 (16) 2.1–6.7	7.5 (52) 5.7–9.8	4.7 (31) 3.2–6.8	14.6 (80) 11.6–18.1	13.8 (78) 11.2–17.0	50.9 (200) 45.4–56.3	38.1 (149) 32.6–43.9

Notes: ^a The CSBS DP was not given to 570 infants who were aged fewer than 6 months at the time of the Wave 1 interview. ^b CI = Confidence interval. Confidence intervals were not reported when all infants showed the skill.

The percentage of girls and boys who scored below and above the 15th percentile is shown in Table 10.4. A chi-square test was used to assess the association between gender and CSBS DP scores above or below the 15th percentile cut-point and this association was not significant. This means that boys and girls did not differ in terms of the numbers whose CSBS DP scores were above the 15th percentile.

Table 10.4 Percentage of children scoring above and below the 15th percentile for the whole cohort on the CSBS DP Infant–Toddler Checklist, B cohort, Wave 1

	Whole cohort	Girls	Boys
	% (n)	% (n)	% (n)
Raw scores below 15th percentile	17.8 (802)	17.5 (421)	17.1 (381)
Raw scores above 15th percentile	82.2 (3,705)	82.5 (1,893)	82.9 (1,812)

Note: $\chi^2(1, n = 4,507) = 0.10, p = .79$.

PEDS

The PEDS is a 10-item questionnaire that identifies children for referral to clinical services based on parents' concerns about their child's developmental and behavioural problems. Two of the questions assess parental concerns about expressive and receptive language abilities (see Table 10.5). Two per cent of parents of boys and 1% of parents of girls had some concerns about their child's expressive language abilities and 1% of parents of both boys and girls had some concerns about their child's receptive language abilities. Chi-square tests were used to assess the associations between gender and parental concern about receptive and expressive language abilities and these associations were not significant.

Table 10.5 Percentage of parents with concerns about their child's expressive and receptive language abilities (PEDS), B cohort, Wave 1

	Yes		A little		No		Don't know	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI
Concerns about how child talks and makes speech sounds	1 (19) 0–1	1 (28) 1–2	1 (26) 1–2	2 (37) 1–2	98 (2,446) 97–99	97 (2,541) 96–98	0 (5) 0–1	0 (3) 0–1
Concerns about how child understands what you say	1 (23) 1–2	1 (22) 1–1	1 (19) 1–1	1 (25) 1–2	98 (2,442) 97–98	98 (2,549) 97–98	1 (12) 0–1	0 (13) 0–1

Notes: Expressive language: $\chi^2(3, n = 5,105) = 5.80, p = .15$; Receptive language: $\chi^2(3, n = 5,105) = 1.55, p = .67$.

Language development in Wave 2

In Wave 2, the average age of the B cohort children was 2 years and 10 months. Two language assessments were used:

- the Macarthur Communicative Development Inventory: Level 3 (CDI–3) (Fenson et al., 2006); and
- the PEDS.

CDI–3

The CDI–3 was developed for children aged 30–37 months. Two of the three CDI–3 scales were used: the Vocabulary Scale and the Grammar Scale. The Vocabulary Scale assesses children's expressive vocabulary and is a 100-word checklist that assesses vocabulary complexity, not vocabulary size. The Vocabulary Scale that was used in LSAC consisted of 98 words; 95 of the original 100 words and 3 words that were substituted for words that are commonly used in Australia ("kangaroo" for "reindeer", "biscuit" for "cracker", "footpath" for "sidewalk"). This Vocabulary Checklist yielded a total possible raw score of 98. The Grammar Scale consists of 12 sentence

pairs (e.g., “Daddy, pick me up” and “Daddy picked me up”) and parents are asked to select the sentence that sounds most like the way their child talks. The Grammar Scale yielded a total possible raw score of 12.

Weighted total raw scores for the whole cohort were computed for the Vocabulary Scale and the Grammar Scale and, once again, the cut-point “above” and “below” the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups. The percentage of girls and boys who scored above and below the 15th percentile is shown in Table 10.6. Chi-square tests were used to assess the association between gender and CDI-3 scores above or below the 15th percentile. These associations were significant: 18% of boys compared to 12% of girls scored below the 15th percentile on the Vocabulary Scale and 26% of boys compared to 15% of girls scored below the 15th percentile on the Grammar Scale.

Table 10.6 Percentage of children scoring above and below the 15th percentile for the whole cohort on the Macarthur CDI-3, B cohort, Wave 2

	Girls	Boys
	% (n)	% (n)
Expressive vocabulary		
Raw score below 15th percentile	12.0 (185)	18.2 (306)
Raw score above 15th percentile	88.0 (1,514)	81.8 (1,464)
Grammar		
Raw score below 15th percentile	15.0 (235)	25.7 (426)
Raw score above 15th percentile	85.0 (1,447)	74.3 (1,311)

Notes: Expressive vocabulary: $\chi^2(1, n = 3,469) = 25.30, p < .01$; Grammar: $\chi^2(1, n = 3,419) = 60.40, p < .01$. Percentages may not total 100% due to rounding.

PEDS

The PEDS was given again in Wave 2 (see Table 10.7). Chi-square tests were used to assess the associations between gender and parental concerns about expressive and receptive language abilities. The associations were significant. Twenty-one per cent of parents of boys, compared to 14% of parents of girls, had some concerns about how their child talked. Nine per cent of parents of boys and 4% of parents of girls had some concerns about their child's understanding of language.

Table 10.7 Percentage of parents with concerns about their child's expressive and receptive language abilities (PEDS), B cohort, Wave 2

	Yes		A little		No		Don't know	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI
Concerns about how child talks and makes speech sounds	4 (75) 3–5	6 (130) 5–7	10 (208) 8–11	15 (343) 14–17	86 (1,908) 85–88	79 (1,813) 77–81	0 (5) 0–1	0 (8) 0–1
Concerns about how child understands what you say	1 (28) 1–2	3 (53) 2–4	3 (69) 3–4	6 (117) 5–7	95 (2,082) 94–96	92 (2,111) 90–93	0 (8) 0–1	0 (7) 0–1

Notes: Expressive language: $\chi^2(3, n = 4,490) = 48.20, p < .01$; Receptive language: $\chi^2(3, n = 4,604) = 21.13, p < .01$. Percentages may not total 100% due to rounding.

Language development in Wave 3

In Wave 3, the average age of the B cohort children was 4 years and 10 months. Two language assessments were used:

- the Adapted Peabody Picture Vocabulary Test–III (Adapted PPVT–III) (Rothman, 2003); and
- teacher judgements of the children's expressive and receptive language abilities in relation to other children of the same age known by the teacher.

Adapted PPVT–III

The original PPVT–III was designed for use with children from 2 years 6 months up to adults (Dunn, Dunn, & Williams, 1997) and assesses a person’s knowledge about the meaning of spoken words. People taking the test are asked to select a picture from a set of four that most closely matches the meaning of the stimulus word spoken by the examiner. The Adapted PPVT–III is a shortened form of the original test that yielded a scaled score with a mean of 64.2 (SD 8). Weighted scaled scores for the whole cohort were computed for the Adapted PPVT–III and the cut-point “below” and “above” the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups (see Table 10.8). A chi-square test was used to assess the association between gender and receptive vocabulary and this was significant: 18% of boys compared to 14% of girls scored below the 15th percentile.

Table 10.8 Percentage of children who scored above and below the 15th percentile for the whole cohort on the Adapted PPVT–III, B cohort, Wave 3

	Whole cohort	Girls	Boys
	% (n)	% (n)	% (n)
Scaled score below 15th percentile	16.0 (533)	14.3 (223)	17.8 (310)
Scaled score above 15th percentile	84.0 (3,733)	85.7 (1,871)	82.2 (1,862)

Notes: $\chi^2(1, n = 4,266) = 9.52, p < .05$. Percentages may not total 100% due to rounding.

Teacher ratings of the children’s expressive and receptive language abilities in relation to other children of the same age

Teacher ratings of the children’s expressive and receptive language abilities¹ were assessed using a self-complete questionnaire. The teachers rated the B cohort children’s expressive and receptive language skills in relation to other children of the same age using a four-point ordinal scale (1 = “more competent than others”, 2 = “as competent as others”, 3 = “less competent than others”, 4 = “much less competent than others”). The percentage of girls and boys in each category is reported in Table 10.9. Table 10.9 shows a higher percentage of boys compared to girls in the “less competent” and “much less competent” categories for both expressive and receptive language skills. Chi-square tests were used to assess the associations between gender and teacher ratings of expressive and receptive language abilities and these associations were significant. Twenty-six per cent of boys, compared to 17% of girls, were rated as “less” or “much less” competent in expressive language than other children of the same age known by the teacher. Twenty-one per cent of boys, compared to 12% of girls, were rated as “less” or “much less” competent in receptive language abilities than other children of the same age known by the teacher.

Table 10.9 Teacher ratings of children’s expressive and receptive language skills in relation to other children of the same age, B cohort, Wave 3

	Much less competent		Less competent		As competent		More competent	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI	% (n) 95% CI
Expressive language skills (e.g., using language effectively, ability to communicate ideas)	4 (53) 3–6	7 (109) 6–9	13 (182) 11–15	19 (307) 17–21	57 (941) 54–60	54 (948) 51–56	26 (469) 24–29	20 (362) 18–22
Receptive language skills (e.g., understanding, interpreting and listening)	2 (29) 1–3	4 (57) 3–5	10 (138) 8–12	17 (271) 16–19	60 (988) 57–63	59 (1,046) 57–61	28 (491) 26–30	20 (353) 18–22

Notes: Expressive language: $\chi^2(3, n = 3,371) = 51.63, p < .01$; Receptive language: $\chi^2(3, n = 3,373) = 65.31, p < .01$.

¹ Expressive language ability includes the capacity to use language effectively and to communicate ideas. Receptive language ability includes the capacity to understand, interpret and listen.

10.3 K cohort

Language development in Wave 1

In Wave 1, the average age of the K cohort children ($n = 4,983$) was 4 years and 9 months. Three language assessments were used:

- the Adapted PPVT–III;
- teacher ratings of the children's expressive and receptive language abilities in relation to other children of the same age; and
- the PEDS.

Adapted PPVT–III

The Adapted PPVT–III was used to assess receptive vocabulary. Weighted scaled scores for the whole cohort were computed and the cut-point “below” and “above” the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups (see Table 10.10). A chi-square test was used to assess the association between gender and Adapted PPVT–III scores above and below the 15th percentile and this association was significant: 20% of boys compared to 16% of girls scored below the 15th percentile on the Adapted PPVT–III.

Table 10.10 Percentage of children who scored above and below the 15th percentile for the whole cohort on the PPVT–III, K cohort, Wave 1

	Whole cohort	Girls	Boys
	% (<i>n</i>)	% (<i>n</i>)	% (<i>n</i>)
Scaled score below the 15th percentile	17.7 (724)	15.7 (309)	19.6 (415)
Scaled score above 15th percentile	82.3 (3,682)	84.3 (1,865)	80.4 (1,817)

Note: $\chi^2(1, n = 4,406) = 11.66, p < .01$.

Teacher ratings of the children's expressive and receptive language abilities in relation to other children of the same age

Teacher ratings of the children's expressive and receptive language abilities were obtained in the same way as previously described for the B cohort. Teachers were asked to rate the children's expressive and receptive language skills in relation to other children the same age using a four-point ordinal scale (1 = “more competent than others”, 2 = “as competent as others”, 3 = “less competent than others”, 4 = “much less competent than others”) (see Table 10.11). Chi-square tests were used to assess the association between gender and teacher ratings of expressive and receptive language skills for girls and boys, and these associations were significant. Twenty-seven per cent of boys, compared to 18% of girls, were rated as “less” or “much less” competent in expressive language than other children of the same age known by the teacher. Twenty-two per cent of boys, compared to 13% of girls were rated as “less” or “much less” competent in receptive language abilities than other children of the same age known by the teacher.

PEDS

The PEDS was given in Wave 1 (see Table 10.12). Chi-square tests were used to assess the association between gender and parental concerns about expressive and receptive language abilities. These associations were significant. Thirty-two per cent of parents of boys, compared to 18% of parents of girls, had concerns about how their child talked and made speech sounds. Twelve per cent of parents of boys and 7% of parents of girls were concerned about their child's understanding of language.

Table 10.11 Teacher ratings of children's expressive and receptive language skills in relation to other children the same age, K cohort, Wave 1

	Much less competent		Less competent		As competent		More competent	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI	
Expressive language skills (e.g., using language effectively, ability to communicate ideas)	5 (72) 4–6	9 (127) 7–10	13 (184) 11–15	18 (294) 16–21	55 (862) 52–57	50 (829) 48–53	28 (465) 26–31	23 (391) 21–26
Receptive language skills (e.g., understanding, interpreting and listening)	3 (37) 2–4	6 (84) 4–7	10 (148) 9–12	16 (248) 14–18	59 (930) 56–61	56 (912) 53–59	29 (469) 26–31	23 (397) 21–26

Notes: Expressive language: $\chi^2(3, n = 3,224) = 45.49, p < .01$; Receptive language: $\chi^2(3, n = 3,225) = 47.72, p < .01$. Percentages may not total 100% due to rounding.

Table 10.12 Percentage of parents with concerns about their child's expressive and receptive language abilities (PEDS), K cohort, Wave 1

	Yes		A little		No		Don't know	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI	
Concerns about how child talks and makes speech sounds	8 (198) 7–10	15 (375) 14–17	10 (241) 9–12	17 (404) 15–18	82 (2,005) 80–83	68 (1,757) 66–70	0 (2) –	0 (1) –
Concerns about how child understands what you say	3 (69) 2–4	6 (138) 5–7	4 (90) 3–5	6 (148) 5–7	93 (2,285) 92–94	88 (2,250) 87–89	0 (2) –	0 (1) –

Notes: Expressive language: $\chi^2(3, n = 4,983) = 117.85, p < .01$; Receptive language: $\chi^2(3, n = 4,983) = 39.68, p < .01$.

Language development in Wave 2

In Wave 2, the average age of the K cohort children was 6 years 10 months. Four language assessments used were used:

- the Adapted PPVT-III;
- the Children's Communication Checklist-2 (CCC-2) (Bishop, 2003);
- the Academic Rating Scale: Language and Literacy Skills for 6–7 year olds (Rock & Pollack, 2002); and
- the PEDS.

Adapted PPVT-III

The Adapted PPVT-III was used to assess receptive vocabulary. Weighted scaled scores for the whole cohort were computed and the cut-point "below" and "above" the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups (see Table 10.13). A chi-square test was used to assess the association between gender and Adapted PPVT-III scores above and below the 15th percentile. This association was significant: 20% of boys and 19% of girls scored below the 15th percentile on the Adapted PPVT-III.

Table 10.13 Percentage of children who scored above and below the 15th percentile for the whole cohort on the PPVT-III, K cohort, Wave 2

	Whole cohort	Girls	Boys
	% (n)	% (n)	% (n)
Scaled score below 15th percentile	19.6 (747)	19.0 (354)	20.1 (393)
Scaled score above 15th percentile	80.4 (3570)	81.0 (1759)	79.9 (1811)

Note: $\chi^2(1, n = 4,317) = 0.85, p < .05$.

CCC-2

The CCC-2 consists of 10 scales with seven items each: five items describing language difficulties and two items describing language skills. In LSAC, the Speech, Syntax, Semantics and Coherence Scales were given. These scales assess the structural dimensions of children's language. An example of an item on the Syntax Scale that describes a language difficulty is "Leaves off past tense *-ed* endings on words ...". An example of an item on the Syntax Scale that describes a language skill is "Produces long and complicated sentences ...". The CCC-2 is designed for children aged 4–16 years and can be completed by a parent or a teacher who judges the frequency of each language difficulty/skill on a 4-point ordinal scale (0 = "less than once a week (or never)"; 1 = "at least once a week, but not every day"; 2 = "once or twice a day"; 3 = "several times (more than twice) a day (or always)". Therefore, the raw scores on each scale range from 0–21 and 0–63 for the four scales combined. High scores on the CCC-2 are indicative of language difficulties.

Weighted total raw scores for the four scales for the whole cohort were computed and a cut-point "above" and "below" the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups. The percentage of girls and boys who scored below and above the 15th percentile are shown in Table 10.14. A chi-square test was used to assess the association between gender and a CCC-2 score above or below the 15th percentile for the whole cohort. This association was significant: 16% of boys and 12% of girls scored below the 15th percentile for the whole cohort.

Table 10.14 Percentage of children who scored above and below the 15th percentile on the CCC-2, K cohort, Wave 2

	Whole cohort	Girls	Boys
	% (n)	% (n)	% (n)
Raw scores below 15th percentile	14.1 (423)	11.5 (166)	16.4 (257)
Raw scores above the 15th percentile	85.9 (3,021)	88.5 (1,506)	83.6 (1,515)

Notes: $\chi^2(1, n = 3,444) = 17.36, p < .01$. Percentages may not total 100% due to rounding.

Academic Rating Scale: Language and Literacy Skills, 6–7 years

The Academic Rating Scale (ARS): Language and Literacy Skills, 6–7 years was used to assess children's language and literacy abilities in relation to other children of the same age. The scale was adapted for use in Australian schools (Rothman, 2009). The scale consisted of 10 language and literacy skills and teachers were asked to judge the child's proficiency with each skill on a five-point ordinal scale (1 = "not yet"; 2 = "beginning"; 3 = "in progress"; 4 = "intermediate"; and 5 = "proficient") (see Table 10.15). Chi-square tests were used to assess the association between gender and each of the language and literacy skills. Boys were at earlier stages (i.e., "not yet" or "beginning") than girls in language and literacy attainment, with the exception of "contributing relevant information to classroom discussions".

PEDS

The PEDS was given again in Wave 2 (see Table 10.16). Chi-square tests were used to assess the associations between gender and parental concerns about expressive and receptive language abilities. The associations were significant. Twenty-one per cent of parents of boys, compared to 12% of parents of girls, had some concerns about how their child talked. Twelve per cent of parents of boys and 9% of parents of girls had some concerns about their child's understanding of language.

Table 10.15 Teacher ratings of children's language and literacy skills in relation to other children of the same age on the ARS: Language and Literacy Scale, K cohort, Wave 2

	Not yet		Beginning		In progress		Intermediate		Proficient		Not applicable	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI	
Contributes relevant info ^a	2 (26)	3 (46)	11 (191)	13 (224)	20 (323)	19 (321)	31 (557)	30 (552)	36 (696)	35 (679)	0 (3)	0 (4)
	1-3	2-4	10-13	12-15	18-22	17-20	29-33	28-32	34-39	33-38	0-1	0-1
Understands and interprets a story ^b	1 (20)	3 (44)	9 (138)	12 (198)	16 (268)	20 (353)	36 (627)	32 (588)	38 (733)	33 (635)	0 (6)	0 (5)
	1-2	2-4	7-10	11-14	15-18	18-22	33-38	30-34	36-40	30-35	0-1	0-1
Reads words with regular vowels ^c	3 (49)	6 (108)	9 (136)	12 (200)	15 (260)	17 (304)	25 (438)	24 (432)	48 (897)	41 (770)	1 (8)	0 (7)
	2-4	5-8	7-10	10-14	14-17	15-19	23-27	22-26	45-51	38-43	0-1	0-1
Reads words with irregular vowels ^d	10 (156)	15 (257)	12 (202)	15 (256)	20 (353)	21 (387)	30 (530)	23 (420)	28 (531)	25 (468)	1 (11)	1 (26)
	8-11	13-17	10-14	13-16	18-22	19-24	28-32	21-25	26-31	23-28	0-1	1-2
Reads age-appropriate books ^e	3 (51)	6 (100)	9 (137)	12 (205)	14 (243)	17 (299)	28 (489)	27 (474)	46 (867)	38 (731)	0 (5)	1 (12)
	3-4	5-8	7-10	10-14	13-16	15-19	26-30	24-29	43-48	36-41	0-1	0-1
Reads age-appropriate books fluently ^f	6 (99)	11 (180)	9 (148)	12 (203)	16 (284)	18 (317)	28 (478)	26 (473)	41 (774)	33 (633)	0 (5)	1 (13)
	5-8	9-13	8-11	10-14	14-18	16-19	25-30	24-28	39-43	31-36	0-1	0-1
Writes sentences with more than one clause ^g	7 (111)	12 (198)	11 (186)	16 (273)	22 (386)	25 (431)	31 (566)	28 (515)	28 (523)	20 (374)	1 (16)	1 (27)
	6-8	10-14	10-13	14-17	20-24	22-27	29-34	25-30	25-30	17-22	1-2	1-2
Composes a story with a clear beginning, middle and end ^h	8 (123)	14 (239)	13 (230)	17 (301)	25 (420)	26 (461)	31 (566)	28 (522)	22 (418)	13 (254)	2 (30)	2 (35)
	6-9	12-17	12-15	15-19	22-27	23-28	28-33	25-30	20-24	12-15	1-3	1-2
Understands some print conventions ⁱ	8 (124)	13 (212)	14 (255)	21 (373)	28 (482)	27 (482)	33 (603)	26 (482)	17 (316)	12 (236)	1 (15)	2 (34)
	7-9	11-15	13-16	19-23	25-30	24-29	30-35	24-29	15-19	10-14	1-2	1-2
Uses computer for variety of purposes ^j	8 (138)	10 (173)	21 (358)	21 (366)	27 (484)	27 (477)	29 (536)	24 (456)	10 (192)	12 (233)	4 (73)	5 (100)
	7-10	9-12	19-24	19-23	25-29	25-30	27-31	22-26	9-12	11-14	3-5	4-7

Notes: ^a Contributes relevant info: $\chi^2(5, n = 3,622) = 10.22, p = .13$. ^b Understands and interprets a story: $\chi^2(5, n = 3,615) = 38.00, p < .01$. ^c Reads words with regular vowels: $\chi^2(5, n = 3,609) = 45.39, p < .01$. ^d Reads words with irregular vowels: $\chi^2(5, n = 3,597) = 53.12, p < .01$. ^e Reads age-appropriate books: $\chi^2(5, n = 3,613) = 45.29, p < .01$. ^f Reads age-appropriate books fluently: $\chi^2(5, n = 3,607) = 47.51, p < .01$. ^g Writes sentences with more than one clause: $\chi^2(5, n = 3,606) = 67.80, p < .01$. ^h Composes a story with a clear beginning, middle and end: $\chi^2(5, n = 3,599) = 85.34, p < .01$. ⁱ Understands some print conventions: $\chi^2(5, n = 3,614) = 72.91, p < .01$. ^j Uses computer for variety of purposes: $\chi^2(5, n = 3,586) = 17.43, p < .01$.

Table 10.16 Percentage of parents with concerns about their child's expressive and receptive language abilities (PEDS), K cohort, Wave 2

	Yes		A little		No		Don't know	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI	
Concerns about how child talks and makes speech sounds	5 (94) 4–6	8 (169) 7–10	7 (150) 6–9	13 (267) 11–14	88 (1,885) 86–89	79 (1,780) 77–81	0 (0) –	0 (4) 0–1
Concerns about how child understands what you say	4 (75) 3–5	5 (99) 4–7	5 (89) 4–6	7 (149) 6–8	91 (1,961) 90–93	88 (1,969) 86–89	0 (3) 0–1	0 (5) 0–1

Notes: Expressive language: $\chi^2(3, n = 4,349) = 63.44, p < .01$; Receptive language: $\chi^2(3, n = 4,350) = 15.92, p < .01$. Confidence intervals were not reported for cells containing no observations.

Language development in Wave 3

In Wave 3, the average age of the K cohort children was 8 years 10 months. Three language assessments were used:

- the Adapted PPVT–III;
- the Academic Rating Scale: Language and Literacy Skills for 8–9 year olds (Pollack, Rock, Weiss, & Atkins-Burnett, 2005); and
- teacher ratings of children's language and literacy skills and academic achievement.

Adapted PPVT–III

The Adapted PPVT–III was used to assess receptive vocabulary. Weighted scaled scores for the whole cohort were computed and the cut-point “below” and “above” the 15th percentile (i.e., 85% of children) was used to divide the cohort into two groups (see Table 10.17). A chi-square test was used to assess the association between gender and receptive vocabulary and this association was not significant: 15% of boys and girls scored below the 15th percentile on the Adapted PPVT–III.

Table 10.17 Percentage of children who scored above and below the 15th percentile for the whole cohort on the PPVT–III, K cohort, Wave 3

	Whole cohort	Girls	Boys
	% (n)	% (n)	% (n)
Scaled score below 15th percentile	15.0 (541)	14.7 (260)	15.3 (281)
Scaled score above 15th percentile	85.0 (3,732)	85.3 (1,834)	84.7 (1,898)

Note: $\chi^2(1, n = 4,273) = 0.30, p = .63$.

Academic Rating Scale: Language and Literacy Skills, 8–9 years

The Academic Rating Scale (ARS): Language and Literacy Skills, 8–9 years was used to assess children's language and literacy abilities in relation to other children of the same age. The scale was adapted for use in Australian schools (Rothman, 2009). The scale consisted of nine language and literacy skills and teachers were asked to judge the child's proficiency with each skill on a five-point ordinal scale (1 = “not yet”; 2 = “beginning”; 3 = “in progress”; 4 = “intermediate”; and 5 = “proficient”) (see Table 10.18). Chi-square tests were used to assess the association between gender and each language and literacy skill and these associations were significant, with the exception of computer use. This indicated that a higher percentage of boys compared to girls were at an earlier stage in the development of language and literacy skills, except for computer use.

Table 10.18 Teacher ratings of children's language and literacy skills in relation to other children of the same age on the ARS: Language and Literacy Scale, K cohort, Wave 3

	Not yet		Beginning		In progress		Intermediate		Proficient		Not applicable	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI	
Conveys ideas when speaking ^a	1 (17)	2 (34)	8 (115)	11 (181)	17 (280)	23 (387)	36 (611)	36 (674)	38 (706)	28 (572)	0 (5)	0 (5)
	1-2	2-3	6-9	10-13	15-19	21-25	33-38	33-38	35-41	26-31	0-1	0-1
Use strategies to gain info from print ^b	2 (31)	3 (55)	9 (139)	12 (190)	20 (329)	23 (403)	36 (630)	34 (637)	32 (597)	28 (553)	0 (7)	1 (9)
	2-3	3-4	8-11	10-14	18-22	21-25	34-39	31-36	30-35	26-30	0-1	0-1
Reads fluently ^c	2 (32)	5 (80)	9 (139)	11 (177)	16 (281)	21 (375)	30 (505)	28 (527)	41 (768)	35 (689)	0 (3)	0 (5)
	1-3	4-6	8-11	9-13	15-19	19-23	28-33	26-30	39-44	32-37	0-1	0-1
Reads grade-level books ^d	3 (43)	5 (76)	8 (117)	11 (177)	15 (244)	18 (319)	30 (506)	29 (531)	44 (820)	37 (744)	0 (4)	0 (5)
	2-5	4-6	6-9	9-12	13-17	17-21	28-32	27-31	42-47	35-40	0-1	0-1
Comprehends informational text ^e	4 (62)	6 (92)	10 (159)	14 (230)	20 (341)	21 (373)	36 (631)	33 (623)	29 (529)	26 (515)	0 (8)	1 (15)
	3-6	5-8	9-12	12-16	18-23	19-23	34-39	30-35	26-31	24-28	0-1	1-1
Composes multi-paragraph texts ^f	4 (59)	8 (132)	11 (182)	17 (285)	24 (385)	30 (541)	38 (673)	31 (617)	22 (416)	13 (262)	1 (11)	1 (14)
	3-6	7-10	9-13	15-19	21-26	28-32	36-41	29-34	20-24	12-15	0-1	0-1
Redrafts writing ^g	7 (98)	12 (190)	13 (210)	21 (362)	30 (510)	31 (585)	35 (633)	27 (529)	15 (271)	8 (175)	0 (6)	0 (10)
	5-8	10-14	11-15	19-24	28-32	29-34	32-37	25-29	13-17	7-10	0-1	0-1
Makes editorial corrections ^h	6 (88)	11 (177)	16 (253)	24 (404)	29 (500)	31 (589)	35 (622)	27 (530)	14 (262)	7 (146)	0 (6)	0 (6)
	5-7	9-13	14-18	22-26	27-32	29-33	32-37	25-29	12-16	6-8	0-1	0-1
Uses computer for variety of purposes ⁱ	2 (26)	3 (46)	11 (174)	14 (223)	24 (390)	23 (419)	38 (686)	38 (717)	23 (414)	21 (416)	2 (38)	1 (26)
	1-3	2-4	10-13	12-16	22-26	21-25	35-41	36-41	21-25	19-23	1-3	1-2

Notes: ^a Conveys ideas when speaking: $\chi^2(5, n = 3,587) = 56.53, p < .01$. ^b Uses strategies to gain information from print: $\chi^2(5, n = 3,580) = 21.93, p < .01$. ^c Reads fluently: $\chi^2(5, n = 3,581) = 41.18, p < .01$. ^d Reads grade-level books: $\chi^2(5, n = 3,586) = 34.74, p < .01$. ^e Comprehends informational text: $\chi^2(5, n = 3,578) = 20.44, p < .01$. ^f Composes multi-paragraph texts: $\chi^2(5, n = 3,577) = 112.90, p < .01$. ^g Redrafts writing: $\chi^2(5, n = 3,579) = 112.25, p < .01$. ^h Makes editorial corrections: $\chi^2(5, n = 3,583) = 116.31, p < .01$. ⁱ Uses computer for variety of purposes: $\chi^2(5, n = 3,575) = 14.73, p = .06$.

Teacher ratings of language and literacy skills and academic achievement in relation to other children at the same grade level

In Wave 3, teachers were also asked to make an overall judgement of children's language and literacy skills and academic achievement in relation to other children at the same grade level using a 5-point ordinal scale (1 = "far below average"; 2 = "below average"; 3 = "average"; 4 = "above average"; 5 = "far above average"). Chi-square tests were used to assess the association between gender and language and literacy skills and academic achievement, and these associations were significant. Twenty-eight per cent of boys compared to 19% of girls were judged as "far below average" or "below average" in language and literacy skills. Twenty-one per cent of boys compared to 16% of girls were rated as "far below average" or "below average" on overall academic achievement (Table 10.19).

Table 10.19 Teacher ratings of children's language and literacy skills and academic achievement in relation to other children at the same grade level, K cohort, Wave 3

	Far below average		Below average		Average		Above average		Far above average	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
	% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI		% (n) 95% CI	
Language and literacy skills	4 (51)	6 (98)	15 (244)	22 (366)	42 (711)	42 (767)	34 (632)	27 (543)	5 (95)	3 (71)
	3–5	5–7	13–17	20–24	40–45	40–44	32–37	25–29	4–6	3–4
Academic achievement	3 (42)	5 (70)	13 (210)	16 (264)	48 (812)	49 (889)	32 (586)	28 (552)	3 (59)	3 (63)
	2–5	4–6	12–15	14–19	46–51	46–51	30–34	26–30	2–4	2–4

Notes: Language and literacy: $\chi^2(4, n = 3,578) = 50.10, p < .01$; Overall academic achievement: $\chi^2(4, n = 3,547) = 13.52, p < .05$. Percentages may not total 100% due to rounding.

10.4 Key findings and future opportunities

The finding that boys were over-represented in the low range of performance on almost all the language and literacy assessments at all ages, except in infancy, provides a compelling direction for future studies to explain these gender differences in language and literacy abilities. It will be important to examine the extent to which girls and boys stay in the low range of performance over time and to understand the relationship between individual, home, care, school and community characteristics on continuity and change in language and literacy attainment over time. It will also be important to investigate the relationship between children's language and literacy abilities and other aspects of development such as social skills and behaviour. The ultimate goal is to understand why language and literacy trajectories vary for some children and how these trajectories can be altered to improve developmental outcomes for vulnerable children.

10.5 Further reading

Brinkman, S., Silburn, S., Lawrence, D., & the Australian Early Development Index Partnership. (2006). *Construct and concurrent validity of the Australian Early Development Index: A report to the Technical Advisory Group for the Australian Early Development Index Building Better Communities for Children Project*. West Perth: Telethon Institute for Child Health Research and Centre for Community Child Health.

Brown, J. E., Bittman, M., & Nicholson, J. (2007). Time or money: The impact of parental employment on time that 4 to 5 year olds spend in language building activities. *Australian Journal of Labour Economics*, 10, 149–165.

10.6 References

Australian Curriculum Assessment and Reporting Authority. (2010). *National Assessment Program—Literacy and Numeracy*. Melbourne: ACARA.

Australian Institute of Health and Welfare. (2009). *A picture of Australia's children* (Cat. no. PHE 112). Canberra: AIHW.

- Bishop, D. V. M. (2003). *The Children's Communication Checklist (CCC-2)* (2nd ed.). London: Harcourt Assessment.
- Centre for Community Child Health, & Telethon Institute for Child Health Research. (2009). *A snapshot of early childhood development in Australia: Australian Early Development Index (AEDI). National Report 2009*. Canberra: Australian Government.
- Dunn, L. M., Dunn, L. M., & Williams, K. T. (1997). *Peabody Picture Vocabulary Test-III*. Circle Pines, MN: American Guidance Service.
- Fenson, L., Marchman, V. A., Thal, D. J., Dale, P. S., Reznik, J. S., & Bates, E. (2006). *MacArthur-Bates Communicative Development Inventories (CDIs)* (2nd ed.). Baltimore: Brookes.
- Glascow, P. F. (2000). *Parents' Evaluation of Developmental Status: Authorised Australian version*. Parkville, Vic.: Centre for Community Child Health.
- Law, J., Rush, R., Schoon, I., & Parsons, S. (2009). Modeling developmental language difficulties from school entry into adulthood: Literacy, mental health, and employment outcomes. *Journal of Speech, Language, and Hearing Research*, 52, 1401–1416.
- Pollack, J. M., Rock, D. A., Weiss, M. J., & Atkins-Burnett, S. (2005). *Early Childhood Longitudinal Study: Kindergarten class of 1998–99 (ECLS-K). Psychometric report for the third grade* (NCES No. 2005-62). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, Department of Education.
- Rock, D. A., & Pollack, J. M. (2002). *Early Childhood Longitudinal Study: Kindergarten class of 1998–99 (ECLS-K). Psychometric report for kindergarten through first grade* (NCES No. 2002-05). Washington, DC: National Center for Education Statistics, Department of Education.
- Rothman, S. (2003). *An Australian version of the Adapted PPVT-III for use in research*. Unpublished paper. Melbourne: Australian Council for Educational Research.
- Rothman, S. (2009). *The LSAC Academic Rating Scale score*. Melbourne, Victoria: Australian Council for Educational Research.
- Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.
- Wetherby, A. M., & Prizant, B. M. (2001). *Communication and Symbolic Behavior Scales Developmental Profile: Infant-Toddler Checklist*. Baltimore, MD: Brookes.

Children's pre- and perinatal health experiences

11

Brigit Maguire

Australian Institute of Family Studies

Children's health is important for, and interrelates with, all aspects of their lives, including their ongoing development and long-term outcomes (Zubrick, Silburn, & Prior, 2005). Because the influence of health on children's ongoing wellbeing begins soon after conception (Currie, Stabile, Manivong, & Roos, 2010), this chapter focuses on children's early pre- and perinatal health experiences. Just as children's early health experiences form a foundation for their later outcomes, this chapter is a foundation for future reports and their examination of children's ongoing development, health and wellbeing.

This chapter examines how these early health experiences vary for Australian children from different subpopulation groups. Previous research has shown that health outcomes vary for different subpopulations (e.g., Kramer, Seguin, Lydon, & Goulet, 2000), and previous analysis of data from *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC) has examined the health experiences of the study sample as a whole.¹ Wake et al. (2008) describe the prevalence of prenatal, perinatal and postnatal health issues for Australian infants. This chapter expands on this work to look at how these experiences differ for subpopulations of children. The subpopulation characteristics examined in this chapter are:

- maternal age at birth;
- family socio-economic position (SEP); and
- whether the family lives in a metropolitan or regional area. (See Chapter 2 for details about these groups.)

Chi-square analyses were used to compare groups. Percentages for these subpopulation groups were compared independently (e.g., without examining the relationships between maternal age and family socio-economic position) and without adjusting for potential confounders, so the findings presented in this chapter form a foundation for future analyses that may further examine the effects of adverse early health experiences on children's development and later outcomes, for these and other subpopulation groups.

This chapter focuses on particular aspects of pregnancy and birth that may be indicators of risks to children's health, and for which data were collected in the first wave of LSAC. The chapter looks at whether children in the different subpopulation groups differ on their experiences of:

- mothers' care providers during pregnancy
- maternal conditions and medications taken during the pregnancy;
- risky health behaviours by mothers during pregnancy, particularly drinking alcohol and smoking cigarettes; and
- pre-term birth and low birth weight.

The majority of questions about children's early health experiences were asked of the B cohort only, so most of the results presented in this chapter are limited to that group of children. However, where comparable questions were also asked of the K cohort, comparisons are made between the two cohorts. Interpretations of these comparisons must be made in the context of the differences

¹ The Australian Institute of Health and Welfare (AIHW) National Perinatal Statistics Unit also reports annually on the pregnancy and childbirth of mothers in Australia (e.g., Laws & Sullivan, 2009).

between the two cohorts.² Because of the nature of the questions being explored, references to the “respondent” or the child’s “mother” in this section refer to the child’s biological mother only.

While many of the details discussed in this chapter were collected retrospectively in the study (that is, parents were asked to recall details that had occurred in the past), and may be subject to particular biases in their reporting, they provide a useful indication of the prevalence of certain behaviours and experiences. It is important to note also that membership of particular subpopulation groups is defined at the time of the first home visit in Wave 1, whereas experiences being compared are based on retrospective recall (e.g., during pregnancy). For example, the family’s socio-economic position is defined at Wave 1, but the mother’s antenatal care use occurred before this, while she was pregnant with the study child. However, it is assumed that few families would have moved between groups within this time period and that, on a population level, the pattern of differences remains consistent.

11.1 Who provides mothers with medical care during their pregnancy?

The majority (70%) of women in the study made ten or more visits to their medical care provider during the course of their pregnancy with the study child. Australian women have a number of choices about who provides them with medical care during their pregnancy. The main care providers are a general practitioner (GP), an obstetrician, a midwife, or a formal “shared care” arrangement (e.g., between their GP and a hospital). These medical care providers play a role in reducing health risks to both the mother and child. Knowledge of which medical care providers are most likely to have access to different subpopulation groups (e.g., younger mothers) means that information, services and interventions can be directed and targeted to particular health care settings to minimise the risks experienced by particular subpopulation groups.

Study respondents were asked to identify their primary care provider during the pregnancy with the study child. Obstetricians were the most common providers of antenatal care (42% of mothers), while 29% of mothers used GPs as their main source of medical care during the pregnancy. Twenty per cent used a midwife, 7% used a formal “shared care” arrangement, and 2% used another source of care.

Table 11.1 shows that the use of different medical care providers varied between different subpopulation groups—among women of different ages, between mothers from different SEPs, and between mothers living in metropolitan and regional areas. There were statistically significant variations between groups for all three comparisons.

When compared to older mothers, younger mothers (less than 25 years) were less likely to receive care from an obstetrician and more likely to receive care from a GP or a midwife. For example, mothers who were younger than 25 years old when their child was born were more than twice as likely as mothers 40 years or older to use a GP as their primary source of care (43% versus 18%).

Mothers from families in the lowest 25% of SEP were three times more likely to use a GP as their primary source of antenatal care, twice as likely to use a midwife, and one third as likely to use an obstetrician, compared to mothers from families in the highest 25% of SEP.

Compared to women in metropolitan areas, women in regional areas were almost twice as likely to use a GP as their primary source of care during their pregnancy (43% of women in regional areas did so, compared to 23% of women in metropolitan areas). Conversely, women in regional areas were less likely to use an obstetrician or midwife (32% used an obstetrician and 17% used a midwife) compared to women in metropolitan areas (47% used an obstetrician and 21% used a midwife).

There was little difference between the groups in terms of those who used formal “shared care” or other arrangements for medical care during their pregnancy.

It is likely that differences between the age groups and levels of socio-economic position relate in part to differences in income and/or membership of private health insurance providers. Similarly,

² For example, see the LSAC Data Users Guide (Commonwealth of Australia, 2010). K cohort children were 4–5 years old at the first wave of the study, so their mothers were recalling pregnancy and birth details that occurred further in the past, and were more likely than B cohort mothers to have had another pregnancy in the interim.

Table 11.1 Use of antenatal care providers by maternal age at birth, by family SEP and by residence in metropolitan/regional area, B cohort, Wave 1

	GP	Obste- trician	Mid- wife	Formal "shared care" %	Other	No- body	Total	No. of obser- vations
Mother's age at birth of child								
Under 25 years	42.5	19.9	28.5	6.0	2.7	0.3	100.0	806
25–29 years	32.6	34.5	24.1	6.9	1.6	0.1	100.0	1,345
30–34 years	23.6	52.3	16.5	6.5	1.1	0.0	100.0	1,890
35–39 years	26.1	50.5	13.9	6.8	2.5	0.0	100.0	845
40 years or older	17.8	54.2	15.9	7.3	4.0	0.8	100.0	195
Family socio-economic position								
Lowest 25%	43.7	20.8	24.9	7.3	3.0	0.2	100.0	1,268
Middle 50%	27.9	43.1	20.7	6.6	1.6	0.1	100.0	2,541
Highest 25%	14.2	67.1	12.2	5.5	0.9	0.0	100.0	1,272
Metropolitan/regional areas								
Metropolitan	22.5	47.1	21.4	7.0	1.7	0.1	100.0	3,188
Regional	43.0	31.6	17.2	5.7	2.2	0.1	100.0	1,907

Note: Mother's age at birth of child: $\chi^2(20, n = 5,081) = 379.8, p < .001$; Family socio-economic position: $\chi^2(10, n = 5,081) = 593.7, p < .001$; Metropolitan/regional areas: $\chi^2(5, n = 5,095) = 244.2, p < .001$. Percentages may not total 100% due to rounding.

differences between mothers living in metropolitan and regional areas are expected to be related to differences in access to different forms of health care, as GPs are more likely than specialists such as obstetricians and midwives to be based in regional areas. However, these results show that all subpopulation groups used all care providers to some extent, so it is essential that all care providers are aware of any risks that may be specific to particular subpopulation groups.

11.2 What medications do mothers take during pregnancy?

The use of prescription and over-the-counter medications during pregnancy is an important issue, as medications may be beneficial or harmful to the pregnancy and the child (e.g., Kulaga, Zagarzadeh, & Berard, 2009; Lysterly, Little, & Faden, 2009). Other than those medications that pose a risk during pregnancy, the medications that women report taking during pregnancy may also provide some indication of the health problems they experienced, which may then have an impact on the child's health.

Study respondents were asked to report whether they had taken a range of prescription and over-the-counter medications during pregnancy. Thirty-one per cent of mothers in the study reported that they had taken some sort of prescription medicine during the pregnancy with the study child. Figure 11.1 shows the percentage of women who took each of a range of medications during the pregnancy. The most commonly taken prescription medication was antibiotics/penicillin (10% of mothers).

A higher proportion of women reported taking over-the-counter medications compared to prescription medication. Eighty-four per cent of women reported taking some sort of over-the-counter medication during their pregnancy with the study child. Figure 11.2 shows the percentage that took each of a range of medications. This list of medications includes both those that are recommended during pregnancy, such as folic acid or folate, and those that are not recommended during pregnancy (e.g., some cold and flu tablets). It is a government recommendation that all women take folic acid or folate before and during the first three months of pregnancy³ to prevent

3 See, for example, Food Standards Australia New Zealand (2010).

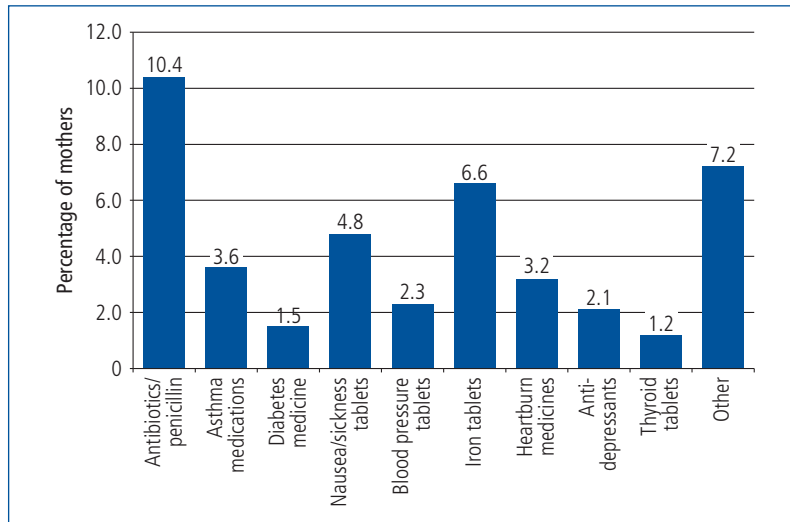


Figure 11.1 Mothers who reported taking prescription medications during pregnancy (n = 5,097), B cohort, Wave 1

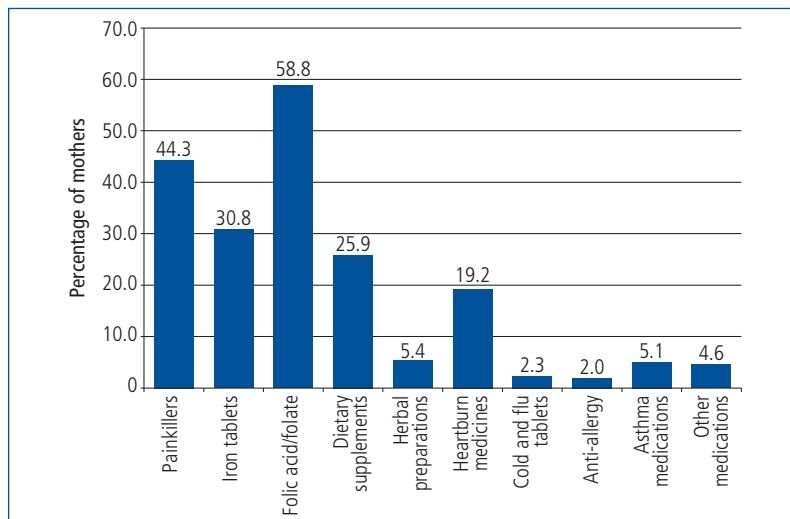


Figure 11.2 Mothers who reported taking over-the-counter medications during pregnancy (n = 5,102), B cohort, Wave 1

neural tube defects in the baby, and 59% of mothers in the study reported taking a folic acid or folate supplement during pregnancy.

Table 11.2 shows that the mother's age was significantly related to whether she took over-the-counter medications during pregnancy, but not to whether she took prescription medications. Mothers who were younger than 25 years or were 40 years or older when their child was born were most likely than other age groups to report taking prescription medicines during pregnancy. These two groups of women were also the least likely of all five groups to report taking over-the-counter medicines during pregnancy.

The use of medications during pregnancy was also related to the family's socio-economic position, with significant variation occurring between the three groups for both prescription and over-the-counter medications. As a family's socio-economic position increased, so did the likelihood of the mother taking over-the-counter medications during pregnancy. Mothers in the lowest 25% of socio-economic position were more likely to take prescription medicines during pregnancy compared to other mothers.

There was no significant difference between women living in metropolitan and regional areas, though women living in metropolitan areas were slightly more likely to report taking over-the-counter medications during pregnancy.

The third column of Table 11.2 shows how use of folic acid or folate supplements during pregnancy varied among different women. There was significant variation between women of different ages, with mothers who were younger than 25 years when the child was born being the least likely group to report taking folic acid during pregnancy. There was also a significant relationship with the family socio-economic position, as consumption of folic acid or folate increased with the family's socio-economic position. This is likely to reflect the importance of education for health behaviours during pregnancy (Kramer et al., 2000). Women in metropolitan areas were more likely to report taking folic acid during pregnancy compared to women living in regional areas, but this difference was not significant.

Table 11.2 Use of prescription and over-the-counter medications during pregnancy, by maternal age at birth and by family socio-economic position, B cohort, Wave 1

	Prescription medications taken during pregnancy		Over-the-counter medications taken during pregnancy		Use of folic acid/folate during pregnancy	
	%	No. of observations	%	No. of observations	%	No. of observations
Mother's age at birth of child						
Under 25 years	33.5	269	76.9	625	46.5	387
25–29 years	29.6	398	83.7	1,144	59.6	829
30–34 years	29.9	554	87.4	1,663	63.4	1,240
35–39 years	29.5	249	85.3	724	61.0	534
40 years or older	32.2	61	82.7	163	58.9	118
Family socio-economic position						
Lowest 25%	35.1	446	74.2	944	41.0	536
Middle 50%	28.8	721	86.3	2,204	62.4	1,616
Highest 25%	28.2	365	92.7	1,173	74.6	959
Metropolitan/regional areas						
Metropolitan	30.4	967	85.3	2,745	60.6	2,015
Regional	30.8	570	81.8	1,581	55.4	1,097

Notes: Mother's age at birth of child—Prescription medications: $\chi^2(4, n = 5,081) = 5.1, p = .35$; Over-the-counter medications: $\chi^2(4, n = 5,077) = 50.1, p < .001$; Folic acid: $\chi^2(4, n = 5,082) = 72.5, p < .001$. Family socio-economic position—Prescription medications: $\chi^2(2, n = 5,080) = 20.5, p < .001$; Over-the-counter medications: $\chi^2(2, n = 5,073) = 179.7, p < .001$; Folic acid: $\chi^2(2, n = 5,087) = 321.0, p < .001$. Metropolitan/regional areas—Prescription medicines: $\chi^2(1, n = 5,094) = 0.1, p = .80$; Over-the-counter medications: $\chi^2(1, n = 5,087) = 10.2, p = .02$; Folic acid: $\chi^2(1, n = 5,102) = 13.1, p = .02$.

11.3 What medical conditions do mothers experience during pregnancy?

The conditions experienced by mothers during pregnancy provide an insight into the health risks faced by the mother and child. For example, the Avon Longitudinal Study of Parents and Children (ALSPAC) has found that maternal anxiety during pregnancy is related to the development of asthma in the child (Golding, 2010). Biological mothers were asked if they had experienced a range of health problems during their pregnancy with the study child.

In both the B and K cohorts, 6% of mothers reported having diabetes during pregnancy and 8% reported having high blood pressure needing treatment (admission to hospital or medication). B cohort mothers were also asked about other physical health problems (20% reported having these) and problems with stress, anxiety or depression (19% reported problems).

For the B cohort, the rates of maternal conditions during pregnancy varied with the mother's age and with the family's socio-economic position (though not all were significant). There was a significant relationship between the mother's age and the incidence of diabetes only. Table 11.3 shows that diabetes was more likely in older mothers, with mothers 40 years or older four times more likely to have diabetes than mothers younger than 25 years.⁴

⁴ Note that the questionnaire did not distinguish between different types of diabetes (e.g., gestational diabetes).

Table 11.3 shows that the rates of maternal conditions during pregnancy also varied with family socio-economic position, though this variation was significant for high blood pressure and stress, anxiety or depression only. Mothers from a poorer socio-economic background were more likely to have high blood pressure or to experience stress, anxiety or depression during pregnancy.

11.4 How many mothers report drinking alcohol or smoking cigarettes during pregnancy?

Risky health behaviours by the mother during pregnancy, particularly drinking alcohol (National Health and Medical Research Council [NHMRC], 2009) and smoking cigarettes (Australian Institute of Health and Welfare [AIHW], 2009), increase the risk of harm to the child. Smoking during pregnancy has been associated with a range of health and developmental problems for the child during the perinatal and postnatal periods, and also for their long-term health and developmental outcomes. These health and developmental problems include risk of spontaneous abortion, ectopic pregnancy, low birth weight, birth defects, respiratory problems, poor cognitive development and psychological problems (AIHW, 2009). While high levels of alcohol consumption during pregnancy have been shown to be associated with severe outcomes for the baby (including miscarriage, stillbirth, birth defects, and neurological and cognitive problems) (AIHW, 2009), there has generally been less consensus on whether low to moderate alcohol consumption is dangerous during pregnancy (Henderson, Gray, & Brocklehurst, 2007). However, the Australian Government has recently released new guidelines that recommend that women do not drink any alcohol during pregnancy (NHMRC, 2009). Analyses of LSAC data (Waves 1 and 2) has shown that close to a quarter of parents (mothers and fathers) of study children smoke cigarettes, and persistence of smoking was more likely among younger, less educated parents, and those with problematic alcohol use and financial problems (Maloney, Hutchinson, Burns, & Mattick, 2010).

Respondents were asked whether they drank alcohol or smoked cigarettes during the pregnancy with the study child and, if so, how much and how often, for each trimester of the pregnancy. This section examines the percentage of mothers who reported drinking alcohol or smoking cigarettes at some stage during the pregnancy. While these are simple measures of risky behaviour during pregnancy (particularly given that these data are probably subject to under-reporting), they provide some indication of the prevalence of these behaviours in the general population, and for different subpopulation groups.

Table 11.3 Medical conditions experienced during pregnancy, by maternal age at birth and by family socio-economic position, B cohort, Wave 1

	Diabetes		High blood pressure		Other physical health problems		Stress, anxiety or depression	
	%	No. of observations	%	No. of observations	%	No. of observations	%	No. of observations
Mother's age at birth of child								
Under 25 years	3.5	20	10.7	60	18.8	105	23.4	131
25–29 years	5.8	58	8.6	94	18.0	207	17.5	192
30–34 years	4.8	80	7.2	113	19.9	328	17.4	281
35–39 years	8.2	55	7.4	47	23.6	171	19.8	139
40 years or older	15.6	26	11.8	18	27.7	44	22.6	40
Family socio-economic position								
Lowest 25%	7.6	65	10.4	93	20.5	192	22.8	208
Middle 50%	5.6	119	8.8	179	20.1	427	18.6	394
Highest 25%	4.8	54	5.1	59	20.7	237	16.0	181

Notes: Mother's age at birth of child—Diabetes: $\chi^2(4, n = 4,221) = 47.5, p < .001$; High blood pressure: $\chi^2(4, n = 4,236) = 11.3, p = .05$; Other health problems: $\chi^2(4, n = 4,227) = 15.7, p = .01$; Stress, anxiety or depression: $\chi^2(4, n = 4,224) = 13.8, p = .01$. Family socio-economic position—Diabetes: $\chi^2(2, n = 4,214) = 8.4, p = .03$; High blood pressure: $\chi^2(2, n = 4,229) = 20.8, p < .001$; Other health problems: $\chi^2(2, n = 4,220) = 0.2, p = .92$; Stress, anxiety or depression: $\chi^2(2, n = 4,217) = 16.5, p < .001$.

Mothers from both the B and K cohorts were asked to report their alcohol consumption and cigarette use, which means that we can make comparisons between the two cohorts. This is of particular interest given historical changes in the Australian Government's recommendations on alcohol consumption during pregnancy. As described in Powers et al. (2010), the guidelines between 1992 and late 2001 recommended that women not drink alcohol during pregnancy. However, in 2001 the guidelines were revised to suggest it was safe to drink small amounts of alcohol during pregnancy, before being changed again in 2009 to the current guidelines recommending no alcohol consumption during pregnancy.

Table 11.4 shows the percentages of mothers in the two cohorts who reported drinking alcohol and who reported smoking cigarettes during their pregnancy. Notwithstanding the differences between the two groups (see introduction to this chapter), the rates of mothers who reported smoking during pregnancy were relatively stable between the two cohorts, with a slight decline consistent with a continued anti-smoking message. However, the numbers of mothers who reported drinking alcohol at some stage of the pregnancy was about 10 percentage points higher for the B cohort (who were born in 2003–04) compared to the K cohort (who were born in 1999–2000). This suggests that rates of alcohol consumption in pregnancy were higher after the release of the less stringent guidelines; however, further research is needed to disentangle the possible effects of under-reporting. The results obtained here are also lower than the rates of alcohol consumption found by Powers et al.'s (2010) analysis of data from the Australian Longitudinal Study on Women's Health, which warrants further analysis of these data in LSAC.

Table 11.4 Percentage of mothers who reported drinking alcohol/smoking cigarettes during pregnancy, B and K cohorts, Wave 1

	Drank alcohol during pregnancy		Smoked cigarettes during pregnancy	
	%	No. of observations	%	No. of observations
K cohort (born 1999–2000)	27.6	1,186	20.0	740
B cohort (born 2003–04)	37.6	1,633	18.3	709

In the B cohort, alcohol consumption and smoking of cigarettes were both significantly related to the age of the mother when the child was born, though in different ways. Table 11.5 shows that older mothers were more likely to report drinking alcohol at some stage during pregnancy: mothers who were 40 years or older when their child was born were more than twice as likely as mothers under 25 years to report drinking (though it is not possible using these data to disentangle the extent to which this is a reporting phenomenon). In contrast, younger mothers were more likely to report smoking during pregnancy: mothers who were younger than 25 years were more than three times as likely to say they smoked, compared to mothers 40 years and older. Recent research has found that the long-term effects of alcohol consumption during pregnancy are related to the mother's age; for example, Chiodo et al. (2010) found that the effect of alcohol consumption on children's performance on measures of attention (e.g., ability to maintain focus on a particular task) at age 7 years was worse for older mothers.

There was a similar (significant) pattern of smoking and alcohol consumption during pregnancy for the three family socio-economic groups. Table 11.5 shows that smoking was less likely and alcohol consumption at some stage during the pregnancy was more likely as a family's socio-economic position increased, with large differences between families in the bottom ranking and the top ranking for both behaviours.

Women living in metropolitan areas were more likely to report drinking alcohol during pregnancy than those in regional areas (though this was not significant). However, women in regional areas were 10 percentage points more likely to report smoking during pregnancy (and this was significant).

Note that these data look only at whether mothers drank alcohol or smoked cigarettes at some stage during their pregnancy. A more detailed analysis could investigate the frequency and amount of alcohol consumption and cigarette smoking.

Table 11.5 Drinking alcohol and cigarette smoking, by maternal age at birth and by family socio-economic position, B cohort, Wave 1

	Drank alcohol during pregnancy		Smoked cigarettes during pregnancy	
	%	No. of observations	%	No. of observations
Mother's age at birth of child				
Under 25 years	19.8	116	36.9	202
25–29 years	32.4	373	18.4	195
30–34 years	44.2	738	14.5	209
35–39 years	44.4	335	12.8	88
40 years or older	42.3	70	9.9	14
Family socio-economic position				
Lowest 25%	22.9	213	35.8	322
Middle 50%	38.3	829	16.3	336
Highest 25%	51.8	590	4.2	48
Metropolitan/regional areas				
Metropolitan	38.9	1,070	15.2	367
Regional	35.0	563	24.6	342

Notes: Mother's age at birth of child—Drank alcohol: $\chi^2(4, n = 4,225) = 142.5, p < .001$; Smoked cigarettes: $\chi^2(4, n = 4,237) = 184.0, p < .001$. Family socio-economic position—Drank alcohol: $\chi^2(2, n = 4,218) = 186.3, p < .001$; Smoked cigarettes: $\chi^2(2, n = 4,230) = 360.1, p < .001$. Metropolitan/regional areas—Drank alcohol: $\chi^2(1, n = 4,227) = 6.1, p = .05$; Smoked cigarettes: $\chi^2(1, n = 4,239) = 56.0, p < .001$.

11.5 Which mothers had a pre-term birth or a child with a low birth weight?

Both pre-term birth (born before 37 weeks of gestation (Laws & Sullivan, 2009)) and low birth weight (less than 2,500 grams⁵) have been found to be associated with a range of ongoing health effects. Pre-term birth is associated with increased risk of cerebral palsy, sensory disabilities, learning problems and respiratory problems, and problems associated with pre-term birth continue throughout life (Beck et al., 2010). Low birth weight is associated with effects such as neurological and physical disabilities, and the effects of low birth weight also continue through childhood and adolescence into adulthood (AIHW, 2009). Gestational age and low birth weight are associated, as babies can be of low birth weight due to being born early or because of poor growth (Laws & Sullivan, 2009).

Of the children in the B cohort, 5% were born late (42 weeks gestation or later), 89% were born on time (37–41 weeks), 5% were born somewhat early (33–36 weeks), and 2% were born very early (32 weeks or earlier). Of the children in the B cohort, 94% were a normal weight (2,500 g and heavier), and 6% had a low birth weight (less than 2,500 g).

Table 11.6 shows that mother's age was not significantly related to gestational age, but older mothers (aged 40 or older) were most likely to have a pre-term birth: 9% did so, compared to 7% of mothers in their 30s. Young mothers (younger than 25 years) and older mothers (40 years or older) were the most likely to have a late birth. The table shows that incidence of low birth weight did not vary significantly between mothers of different ages, though mothers younger than 25 when the child was born were most likely to have a baby with low birth weight.

Table 11.6 also shows that family socio-economic position was significantly related to gestational age. Mothers from families with a low socio-economic position were twice as likely as mothers from families in the top 25% of socio-economic position to have a pre-term birth. Low birth weight was also significantly related to the family's socio-economic position: children were twice as likely to have a low birth weight if they were in the lowest 25% or middle 50% on the ranking of family socio-economic position, compared to those in the top 25%.

5 This is the definition of low birth weight provided by the World Health Organization (2010).

Table 11.6 Gestational age and low birth weight, by maternal age at birth and by family socio-economic position, B cohort, Wave 1

	Gestational age						Low birth weight	
	Late birth (42 weeks or later)	On time (37–41 weeks)	Some- what early (33–36 weeks)	Very early (32 weeks or earlier)	Total	No. of obser- vations	%	No. of obser- vations
	%							
Mother's age at birth of child								
Under 25 years	5.5	87.2	5.7	1.7	100.0	807	6.7	800
25–29 years	4.3	89.8	4.8	1.1	100.0	1,347	5.9	1,339
30–34 years	4.8	88.3	5.2	1.8	100.0	1,889	5.0	1,881
35–39 years	3.9	89.3	4.8	1.9	100.0	843	5.7	840
40 years or older	5.4	85.3	6.7	2.6	100.0	194	5.9	194
Family socio-economic position								
Lowest 25%	4.9	86.1	6.8	2.2	100.0	1,270	7.2	1,251
Middle 50%	4.5	88.7	5.0	1.8	100.0	2,544	6.1	2,538
Highest 25%	4.7	91.1	3.7	0.6	100.0	1,270	3.0	1,269

Note: Mother's age at birth of child—Gestational age: $\chi^2(12, n = 5,080) = 9.9, p = .72$; Low birth weight: $\chi^2(4, n = 5,054) = 3.7, p = .51$. Family socio-economic position—Gestational age: $\chi^2(6, n = 5,084) = 24.9, p < .01$; Low birth weight: $\chi^2(2, n = 5,058) = 23.0, p < .001$. Percentages may not total 100% due to rounding.

11.6 Summary

This chapter has examined particular aspects of children's early health experiences that may be indicators of risks to children's health, and has explored how these early health experiences vary for Australian children from different subpopulation groups.

There was little variation between mothers living in metropolitan or regional areas, though women living in regional areas were more likely to report smoking at some time during pregnancy.

Younger mothers were less likely to take over-the-counter medications, less likely to drink alcohol at some stage during pregnancy, but more likely to smoke. Older mothers were more likely to experience diabetes during their pregnancy, to drink alcohol at some stage during pregnancy, but less likely to smoke.

Mothers from a poorer socio-economic background were more likely to take prescription medicines and less likely to take over-the-counter medications during pregnancy. They were more likely to smoke, have high blood pressure and stress, anxiety or depression during pregnancy, and their children were more likely to be born pre-term, and to have a low birth weight. Mothers from the top 25% of socio-economic position were more likely to report drinking alcohol at some stage during pregnancy compared to other mothers.

It is likely that there are relationships between the comparisons made in this chapter; for example, mother's age is related to family socio-economic position (as younger mothers are more likely to be less educated and to have lower incomes). This chapter has compared subpopulation groups independently, without adjusting for potential confounders or statistically testing differences, and further analyses are warranted to examine the effects of adverse early health experiences on children's development and later outcomes, for these and other subpopulation groups. Nevertheless, the care providers used by different groups of women play an important role in ensuring that health risks specific to particular groups are minimised and that children from all subpopulation groups have a chance to experience a healthy start to life. Future research will be able to use LSAC data to investigate the association between children's early pre- and perinatal health experiences and their later health and developmental outcomes.

11.7 Further reading

- Baxter, J. (2008). Breastfeeding, employment and leave: An analysis of mothers in *Growing Up in Australia*. *Family Matters*, 80, 17–26.
- Baxter, J., Cooklin, C., & Smith, J. (2009). Which mothers wean their babies prematurely from full breastfeeding? An Australian cohort study. *Acta Paediatrica*, 98(8), 1274–1277.
- Baxter, J., & Smith, J. (2009). *Breastfeeding and infants' time use* (Research Paper No. 43). Melbourne: Australian Institute of Family Studies
- Cooklin, A. R., Donath, S. M., & Amir, L. H. (2008). Maternal employment and breastfeeding: Results from the Longitudinal Study of Australian Children. *Acta Paediatrica*, 97(5), 620–623.
- Donath, S. M., & Amir, L. (2008). Maternal obesity and initiation and duration of breastfeeding: Data from the Longitudinal Study of Australian Children. *Maternal and Child Nutrition*, 4, 163–170.
- Nicholson, J. M., & Sanson, A. (2003). A new longitudinal study of the health and wellbeing of Australian children: How will it help. *Medical Journal of Australia*, 178(6), 282–284.
- Qu, L., Soriano, G., & Weston, R. (2006) Starting early, starting late: The health and wellbeing of mother and child. *Family Matters*, 74, 4–11.
- Wake, M., Sanson, A., Berthelsen, D., Hardy, P., Misson, S., Smith, K., et al. (2008). *How well are Australian infants and children aged 4 to 5 years doing?* (Social Policy Research Paper No. 36). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

11.8 References

- Australian Institute of Health and Welfare. (2009). *A picture of Australia's children 2009*. Canberra: AIHW.
- Beck, S., Wojdyla, D., Say, L., Betran, A. P., Merialdi, M., Requejo, J. H., et al. (2010). The worldwide incidence of preterm birth: A systematic review of maternal mortality and morbidity. *Bulletin of the World Health Organization*, 88, 31–38.
- Chiodo, L. M., da Costa, D. E., Hannigan, J. H., Covington, C. Y., Sokol, R. J., Janisse, J., Greenwald, M., Ager, J., & Delaney-Black, V. (2010). The impact of maternal age on the effects of prenatal alcohol exposure on attention. *Alcoholism: Clinical Experimental Research*, 34(10), 1813–1821.
- Commonwealth of Australia. (2010). *LSAC data users information*. Melbourne: Australian Institute of Family Studies. Retrieved from <www.aifs.gov.au/growingup/data/index.html>.
- Currie, J., Stabile, M., Manivong, P., & Roos, L. L. (2010). Child health and young adult outcomes. *Journal of Human Resources*, 45(3), 517.
- Food Standards Australia New Zealand. (2010). *Folic acid/folate*. Canberra: FSANZ. Retrieved from <www.foodstandards.gov.au/consumerinformation/adviceforpregnantwomen/folicacidfolateandpr4598.cfm>.
- Golding, J. (2010). Determinants of child health and development: The contribution of ALSPAC. A personal view of the birth cohort study. *Archives of Disease in Childhood*, 95(5), 319–322.
- Henderson, J., Gray, R., & Brocklehurst, P. (2007). Systematic review of effects of low–moderate prenatal alcohol exposure on pregnancy outcome. *BJOG: An International Journal of Obstetrics and Gynaecology*, 114, 243–252.
- Kramer, M. S., Seguin, L., Lydon, J., & Goulet, L. (2000). Socio-economic disparities in pregnancy outcome: Why do the poor fare so poorly? *Paediatric and Perinatal Epidemiology*, 14, 194–210.
- Kulaga, S., Zagarzadeh, A., & Berard, A. (2009). Prescriptions filled during pregnancy for drugs with the potential of fetal harm. *BJOG: An International Journal of Obstetrics and Gynaecology*, 116, 1788–1795.
- Laws, P., & Sullivan, E. A. (2009). *Australia's mothers and babies 2007* (Perinatal Statistics Series No. 23; Cat No. PER 48). Sydney: AIHW National Perinatal Statistics Unit.
- Lyerly, A. D., Little, M. O., & Faden, R. R. (2009). The National Children's Study: A golden opportunity to advance the health of pregnant women (Commentary). *American Journal of Public Health*, 99(10), 1742–1745.
- Maloney, E., Hutchinson, D., Burns, L., & Mattick, R. (2010). Prevalence of and characteristics associated with persistent smoking among Australian mothers and fathers: Findings from the Longitudinal Study of Australian Children (LSAC). *Journal of Family Studies*, 16(2), 165–175.
- National Health and Medical Research Council. (2009). *Australian guidelines to reduce health risks from drinking alcohol*. Canberra: NHMRC.
- Powers, J. R., Loxton, D. J., Burns, L. A., Shakeshaft, A., Elliott, E. J., & Dunlop, A. J. (2010). Assessing pregnant women's compliance with different alcohol guidelines: An 11-year prospective study. *Medical Journal of Australia*, 192(12), 690–693.
- Wake, M., Sanson, A., Berthelsen, D., Hardy, P., Misson, S., Smith, K., et al. (2008). *How well are Australian infants and children aged 4 to 5 years doing?* (Social Policy Research Paper No. 36). Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.
- World Health Organization. (2010) *Low birthweight newborns (percentage)*. Geneva: WHO. Retrieved from <www.who.int/whosis/indicators/compendium/2008/2bwn/en/index.html>.
- Zubrick, S. R., Silburn, S. R., & Prior, M. (2005). Resources and contexts for child development: Implications for children and society. In S. Richardson & S. Prior (Eds.), *No time to lose. The wellbeing of Australia's children*. Melbourne: Melbourne University Press.